United States
Department of
Agriculture

**Natural
Resources
Conservation
Service**

Washington Basin Outlook Report March 1, 1997

Basin Outlook Reports
and
Federal - State - Private
Cooperative Snow Surveys

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How forecasts are made

Most of the annual streamflow in the Western United States originates as snowfall that has accumulated high in the mountains during winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Predictions are based on careful measurements of snow water equivalent at selected index points. Precipitation, temperature, soil moisture and antecedent streamflow data are combined with snowpack data to prepare runoff forecasts. Streamflow forecasts are coordinated by Natural Resources Conservation Service and National Weather Service hydrologists. This report presents a comprehensive picture of water supply conditions for areas dependent upon surface runoff. It includes selected streamflow forecasts, summarized snowpack and precipitation data, reservoir storage data, and narratives describing current conditions.

Snowpack data are obtained by using a combination of manual and automated SNOTEL measurement methods. Manual readings of snow depth and water equivalent are taken at locations called snow courses on a monthly or semi-monthly schedule during the winter. In addition, snow water equivalent, precipitation and temperature are monitored on a daily basis and transmitted via meteor burst telemetry to central data collection facilities. Both monthly and daily data are used to project snowmelt runoff.

Forecast uncertainty originates from two sources: (1) uncertainty of future hydrologic and climatic conditions, and (2) error in the forecasting procedure. To express the uncertainty in the most probable forecast, four additional forecasts are provided. The actual streamflow can be expected to exceed the most probable forecast 50% of the time. Similarly, the actual streamflow volume can be expected to exceed the 90% forecast volume 90% of the time. The same is true for the 70%, 30%, and 10% forecasts. Generally, the 90% and 70% forecasts reflect drier than normal hydrologic and climatic conditions; the 30% and 10% forecasts reflect wetter than normal conditions. As the forecast season progresses, a greater portion of the future hydrologic and climatic uncertainty will become known and the additional forecasts will move closer to the most probable forecast.

Washington
Water Supply Outlook

March 1997

General Outlook

Snowpack and precipitation averages remain above normal across the state of Washington. Streamflow and reservoir levels also remain higher than average. Spring and summer streamflows are forecasted to be above normal. The National Weather Service is predicting a high probability of spring flooding for most of the state. Many new snowpack records have been met and exceeded at SNOTEL sites in Washington. Paradise Park SNOTEL on Mt. Rainier has already exceeded the record total seasonal water content of 84.3 inches set on May 10, 1981, by 3 percent. Snowpack normally accumulates at Paradise until May 1 or after.

Snowpack

The March 1 statewide SNOTEL readings remain well above average at 158%. Snowpack varied from near to much above average over the state, with the Nooksack River Basin SNOTEL reporting the lowest with 101% of average, and the Cedar River Basin the highest at 206% of average. Westside averages from SNOTEL and March 1 snow surveys included the North Puget Sound river basins with 124% of average, the Olympic Peninsula basins with 102%, and the Lewis-Cowlitz basins with 155% of average. Snowpack along the east slopes of the Cascade Mountains included the Yakima with 162%, and the Wenatchee with 145%. Snowpack in the Spokane River Basin was at 159%, and the Pend Oreille River Basin, including Canadian data, had 146% of average. Maximum snow cover in Washington was at Paradise Park SNOTEL on Mt. Rainier, with a water content of 86.8 inches. This site would normally have 47.9 inches of water content on March 1. The highest average in the state was Tinkham Creek SNOTEL near the Cedar River with 256% of average. The lowest snowpack in the state was at the Spirit Lake SNOTEL near Mt. St. Helens with 3.4 inches of snow-water-equivalent. Spirit Lake would normally have 6.6 inches on March 1.

BASIN	PERCENT OF LAST YEAR	PERCENT OF AVERAGE
Spokane	228	159
Colville	N/A	N/A
Pend Oreille	137	146
Okanogan	115	130
Methow	104	142
Wenatchee	135	145
Chelan	107	136
Yakima	180	162
Walla Walla	205	160
Cowlitz	181	156
Lewis	246	153
White	152	156
Green	337	159
Central Puget Sound	284	152
North Puget Sound	239	124
Olympic Peninsula	261	102

Precipitation

The National Weather Service and Natural Resources Conservation Service climate stations during the month of February showed from below average all the way up to above average precipitation for most of the state. The highest percent of average in the state was at Pigtail Peak SNOTEL site near White Pass, Washington. Pigtail Peak reported 190% of average for a total of 15.6 inches. Average for this site is 8.19 inches for February. Averages for the water year varied from 115% of average in the Okanogan - Methow and Olympic river basins to 161% of average in the Walla Walla River Basins. The highest average for the water year is 206% of average at Mill Creek Dam near Walla Walla.

BASIN	FEBRUARY PERCENT OF AVERAGE	WATER YEAR PERCENT OF AVERAGE
Spokane	106	140
Colville-Pend Oreille	83	131
Okanogan-Methow	70	115
Wenatchee-Chelan	88	122
Yakima	107	147
Walla Walla	109	161
Cowlitz-Lewis	85	136
White-Green	113	140
Central Puget Sound	118	137
North Puget Sound	80	129
Olympic Peninsula	60	115

Reservoir

Reservoir storage in Washington varied greatly due to fluctuating runoff and flood control management. Reservoir storage in the Yakima Basin was 625,200 acre feet or 90% of average. Storage at other reservoirs included Roosevelt at 68% of average, and the Okanogan reservoirs with 130% of average for March 1. The power generation reservoirs included the following: Coeur d'Alene Lake, 146,500 acre feet, or 98% of average; Chelan Lake, 224,000 acre feet, 133% of average and 33% of capacity; and Ross Lake at 277% of average and 61% of capacity. Greater than average releases continued from most reservoirs across the state. These numbers may change dramatically over the next few months in preparation for spring runoff and flood control.

BASIN	PERCENT OF CAPACITY	PERCENT OF AVERAGE
Spokane	61	98
Colville-Pend Oreille	43	76
Okanogan-Methow	77	130
Wenatchee-Chelan	33	133
Yakima	59	90
North Puget Sound	61	277

For more information contact your local Natural Resources Conservation Service office.

Streamflow

Forecasts for summer streamflow are mostly for well above average. They vary from 112% of average for the Columbia at Birchbank to 157% of average for Colville at Kettle Falls. March forecasts for some Western Washington streams include: Cedar River near Cedar Falls, 123%; Green River, 128%; and the Dungeness River, 120%. Some Eastern Washington streams include Yakima River near Parker, 140%; the Wenatchee River at Peshastin, 134%; and the Spokane River near Post Falls, 150%.

February streamflows varied from well above to near average. The South Fork Walla Walla near Milton Freewater was the highest at 271% of average; and the Lewis River at Ariel, with 99% of average, was the lowest in the state. Other streamflows were the following percentage of average: the Cowlitz River, 122%; the Skagit River, 115%; the Okanogan River, 186%; the Spokane River, 131%; the Columbia at the Canadian border, 106%, and the Yakima River at Kiona, 157%.

BASIN	PERCENT OF AVERAGE MOST PROBABLE FORECAST (50 PERCENT CHANCE OF EXCEDENCE)
Spokane	148-150
Colville-Pend Oreille	112-157
Okanogan-Methow	132-137
Wenatchee-Chelan	128-137
Yakima	135-151
Walla Walla	121-152
Cowlitz-Lewis	112-151
White-Green	128
Central Puget Sound	120-124
North Puget Sound	123-126
Olympic Peninsula	120-122

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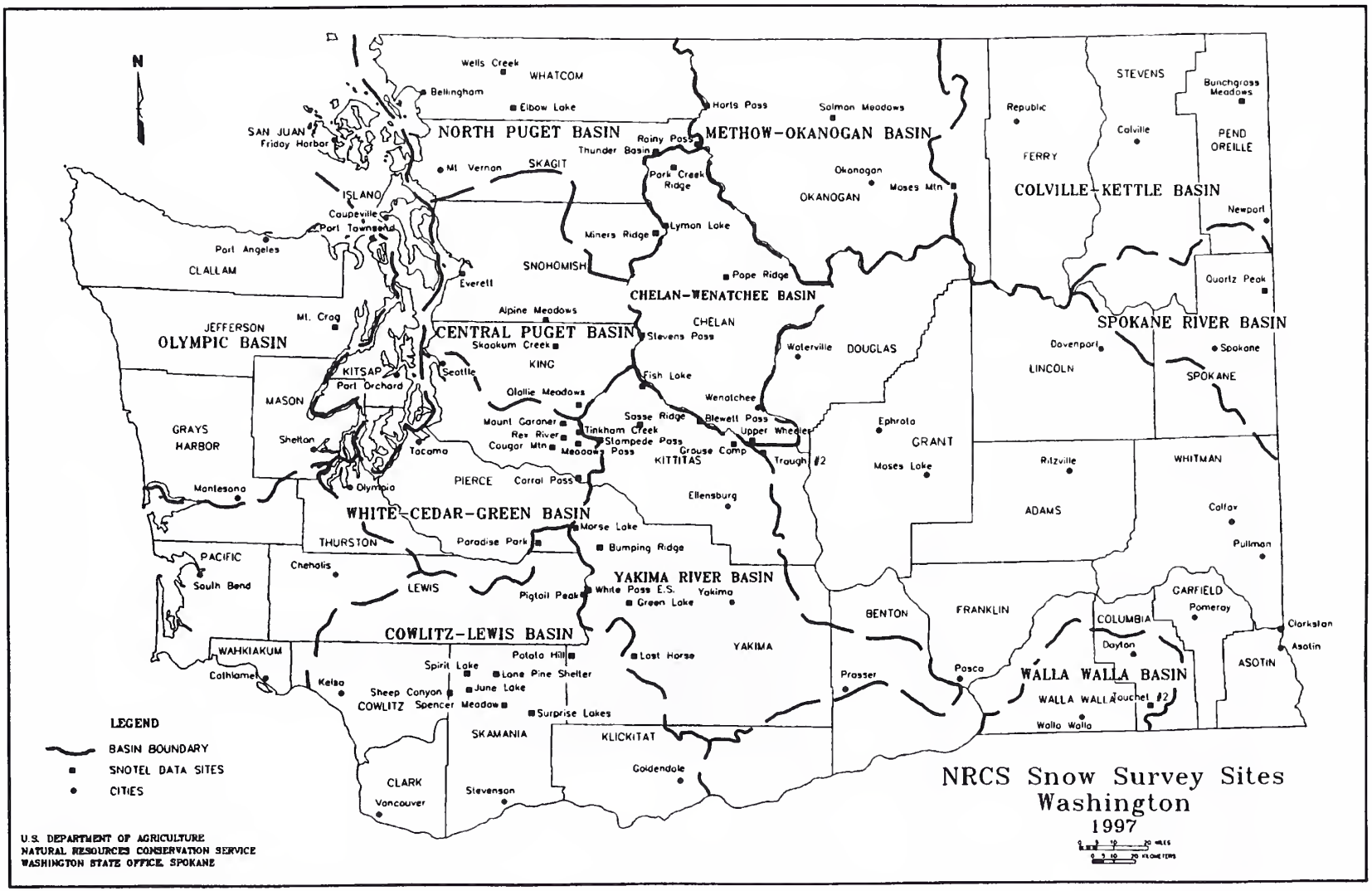
BASIN SUMMARY OF SNOW COURSE DATA

MARCH 1997

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-90
ALPINE MEADOWS	3500	2/27/97	109	44.0	16.6	33.8
ALPINE MEADOWS PILL	3500	3/01/97	---	55.7S	27.7	37.1
AMBROSE	6480	2/27/97	60	17.9	10.8	11.0
ASHLEY DIVIDE	4820	2/25/97	38	11.7	5.6	6.4
BADGER PASS	6900	2/24/97	112	39.2	--	33.2
BADGER PASS PILLOW	6900	3/01/97	---	37.1	34.4	30.8
BAREE CREEK	5500	2/24/97	120	44.7	--	39.4
BAREE MIDWAY	4600	2/24/97	53	18.2	21.4	30.5
BARKER LAKES PILLOW	8250	3/01/97	---	15.9	12.6	12.2
BASIN CREEK PILLOW	7180	3/01/97	---	8.4	6.3	6.5
BASSOO PEAK	5150	2/26/97	45	14.6	8.2	10.0
BEAVER CREEK TRAIL	2200	2/27/97	66	25.8	7.7	12.6
BEAVER PASS	3680	2/26/97	91	36.4	16.2	25.1
BLACK MOUNTAIN	7750	2/24/97	62	17.9	11.0	12.2
BLACK PINE PILLOW	7100	3/01/97	---	14.5	13.9	10.5
BLEWETT PASS#2PILLOW	4270	3/01/97	---	20.9S	12.4	17.0
BLUE LAKE	5900	2/24/97	81	26.0	20.6	22.0
BRIEF	1600	2/25/97	34	13.1	9.3	6.9
BROWN TOP AM	6000	2/26/97	163	60.5	51.0	51.9
BRUSH CREEK TIMBER	5000	2/24/97	36	9.8	5.6	8.6
BULL MOUNTAIN	6600	2/26/97	30	8.2	5.5	5.2
BUMPING RIDGE PILLOW	4600	3/01/97	---	41.1S	18.3	18.4
BUNCHGRASS MDWPILLOW	5000	3/01/97	---	37.9	21.4	22.7
CAYUSE PASS	5300	2/25/97	204	85.6	62.0	65.3
CHESSMAN RESERVOIR	6200	2/24/97	16	3.8	.5	3.4
CHEWALAH	4930	2/26/97	67	22.8	--	13.5
CHICKEN CREEK	4060	2/27/97	74	23.4	15.9	14.3
CHIWAUKUM G.S.	2500	3/04/97	53	18.5	12.5	10.7
CITY CABIN	2390	2/26/97	44	18.0	8.8	12.3
COMBINATION PILLOW	5600	3/01/97	---	7.4	3.6	5.1
COPPER BOTTOM PILLOW	5200	3/01/97	---	16.9	11.0	10.0
COPPER MOUNTAIN	7700	2/28/97	50	14.8	11.2	9.1
CORNER CREEK	3150	2/27/97	45	14.8	2.1	6.9
CORRAL PASS PILLOW	6000	3/01/97	---	48.0S	29.0	27.6
COTTONWOOD CREEK	6400	2/24/97	38	9.9	4.0	6.5
COUGAR MTN. PILLOW	3200	3/01/97	---	30.8S	9.4	18.6
COX VALLEY	4500	2/24/97	10	38.8	15.7	32.4
COYOTE HILL	4200	2/28/97	54	16.2	8.8	9.5
DALY CREEK PILLOW	5780	3/01/97	---	16.9	9.9	10.0
DEER PARK	5200	2/25/97	38	14.2	7.8	17.3
DESERT MOUNTAIN	5600	3/01/97	---	20.3E	11.9	13.2
DEVILS PARK	5900	2/26/97	120	43.6	42.6	36.9
DISCOVERY BASIN	7050	2/27/97	56	16.4	10.4	8.6
DIX HILL	6400	3/02/97	52	15.1	9.5	10.7
DOMMERIE FLATS	2200	2/27/97	31	12.4	7.3	7.7
EAST FORK R.S.	5400	2/27/97	37	8.9	6.7	6.0
EAST RAGGED SADDLE	3740	3/01/97	83	31.5	6.3	17.7
EL DORADO MINE	7800	2/26/97	72	21.9	17.2	16.7
ELBOW LAKE PILLOW	3200	3/01/97	---	48.1S	8.8	40.9
EMERY CREEK PILLOW	4350	3/01/97	---	21.2	9.8	14.0
FATTY CREEK	5500	2/28/97	113	37.2	18.6	20.2
FISH CREEK	8000	2/28/97	44	12.3	7.6	7.8
FISH LAKE	3370	2/26/97	110	39.4	28.2	29.3
FISH LAKE PILLOW	3370	3/01/97	---	45.0S	34.6	28.4
FLATTOP MTN PILLOW	6300	3/01/97	---	53.9	49.1	40.9
FLEECER RIDGE	7500	2/26/97	48	15.9	13.4	9.0
FOURTH OF JULY SUM	3200	2/24/97	44	15.8	8.9	8.4
FREEZEOUT CK. TRAIL	3500	2/28/97	49	16.3	6.6	11.1
FROHNER MDWS PILLOW	6480	3/01/97	---	8.7	7.3	7.2
GOAT CREEK	3600	2/27/97	28	8.9	6.3	6.4
GRASS MOUNTAIN #2	2900	2/28/97	41	18.0	3.0	13.9
GRAVE CREEK	4300	2/27/97	68	21.1	--	15.7
GRAVE CRK PILLOW	4300	3/01/97	---	20.1	14.5	15.2
GREEN LAKE PILLOW	6000	3/01/97	---	32.0S	19.6	17.5
GRIFFIN CR DIVIDE	5150	2/26/97	49	15.0	8.9	10.0
GROUSE CAMP PILLOW	5380	3/01/97	---	23.6S	19.4	17.1
HAND CREEK PILLOW	5030	3/01/97	---	17.7	10.9	10.9
HARTS PASS PILLOW	6500	3/01/97	---	44.7S	47.6	34.6
HELL ROARING DIVIDE	5770	2/27/97	105	34.9	29.2	26.4
HERRIG JUNCTION	4850	2/27/97	95	34.1	27.8	21.7
HIGH RIDGE PILLOW	4980	3/01/97	---	34.5S	16.8	21.6
HOLBROOK	4530	3/01/97	---	15.7E	8.3	8.8
HOODOO BASIN PILLOW	6050	3/01/97	---	56.6	47.3	39.7
HOODOO CREEK	5900	3/01/97	---	51.6E	46.4	39.2
HUMBOLDT GLCH PILLOW	4250	3/01/97	---	19.3	7.0	12.8
HURRICANE	4500	2/27/97	50	18.4	4.0	17.4
INTERGAARD	6450	2/27/97	43	11.6	5.6	6.8
JUNE LAKE PILLOW	3200	3/01/97	---	45.4S	9.8	33.6
KELLOGG PEAK	5560	2/24/97	106	40.1	20.1	26.3
KISHENEHN	3890	2/25/97	45	12.6	8.0	7.5
KIT CARSON PASTURE	4950	2/28/97	43	12.3	10.6	7.8
KRAFT CREEK PILLOW	4750	3/01/97	---	25.1	10.6	14.5
LESTER CREEK	3100	2/28/97	82	31.6	13.0	17.7
LOGAN CREEK	4300	2/24/97	36	10.5	6.4	6.7
LOLO PASS PILLOW	5240	3/01/97	---	40.6	31.1	28.0
LONE PINE PILLOW	3800	3/01/97	---	46.2S	19.7	28.1
LOOKOUT PILLOW	5140	3/01/97	---	40.9	22.6	28.0
LOST HORSE PILLOW	5000	3/01/97	---	28.2S	16.0	25.6
LOST LAKE PILLOW	6110	3/01/97	---	79.7	52.3	52.7
LOWER SANDS CREEK #2	3120	2/27/97	90	30.4	8.9	16.9
LUBRECHT PILLOW	4680	3/01/97	---	8.9	5.1	5.8
LYMAN LAKE PILLOW	5900	3/01/97	---	65.2S	63.1	48.4
LYNN LAKE	4000	2/28/97	64	25.8	12.8	16.0
MARIAS PASS	5250	2/27/97	73	25.4	15.0	14.9
MEADOWS CABIN	1900	2/27/97	37	14.4	3.1	6.2
MEADOWS PASS PILLOW	3240	3/01/97	---	35.7S	11.3	18.1
MERRITT	2140	3/04/97	64	22.7	16.2	14.4
MICA CREEK PILLOW	4750	3/01/97	---	41.7	15.2	--
MINERAL CREEK	4000	2/26/97	80	28.0	16.8	15.9
MISSION RIDGE	5000	2/24/97	57	20.1	14.9	14.0
MOOSE CREEK PILLOW	6200	3/01/97	---	25.7	20.8	14.5
MORRISSEY RIDGE CAN.	6100	3/01/97	---	31.0	30.2	25.4
MORSE LAKE PILLOW	5400	3/01/97	---	71.4S	43.7	38.5
MOSES MTN PILLOW	4800	3/01/97	---	15.2S	14.4	11.7
MOSQUITO RDG PILLOW	5200	3/01/97	---	44.4	26.8	32.2
MOULTON RESERVOIR	6850	2/28/97	46	13.4	8.0	5.8
MOUNT CRAG PILLOW	4050	3/01/97	---	26.2S	16.9	26.5
MT. GARDNER	3300	2/27/97	67	39.0	6.4	14.2
MT. GARDNER PILLOW	2860	3/01/97	---	24.9S	9.0	14.2
MUTTON CREEK #1	5700	2/26/97	46	15.6	12.0	11.4
N.F. ELK CR PILLOW	6250	3/01/97	---	15.5	12.2	10.8
NEVADA CREEK PILLOW	6480	3/01/97	---	18.1	14.5	11.2
NEW HOZOMEEN LAKE	2800	2/26/97	47	17.3	5.5	10.9
NEZ PERCE CMP PILLOW	5650	3/01/97	---	19.1	15.7	13.0
NEZ PERCE PASS	6570	2/28/97	67	21.5	15.7	14.6
NOISY BASIN PILLOW	6040	3/01/97	---	57.6	37.4	33.7
NORTH FORK JOCKO	6330	2/28/97	151	55.4	45.2	38.2
OLALLIE MDWS PILLOW	3960	3/01/97	---	73.9S	35.9	44.6
OPHIR PARK	7150	3/02/97	68	19.5	15.6	14.7
PARADISE PARK PILLOW	5500	3/01/97	---	86.8S	49.4	47.9
PARK CK RIDGE PILLOW	4600	3/01/97	---	60.6S	50.6	40.6
PETERSON MDW PILLOW	7200	2/27/97	---	12.5	8.3	8.5
PIGTAIL PEAK PILLOW	5900	3/01/97	---	78.7S	46.4	41.0
PIKE CREEK PILLOW	5930	3/01/97	---	33.1	26.7	22.8
PIPESTONE PASS	7200	2/27/97	28	7.0	4.1	4.1
POPE RIDGE PILLOW	3540	3/01/97	---	27.0S	24.8	16.7
POTATO HILL PILLOW	4500	3/01/97	---	33.5S	17.5	21.9
QUARTZ PEAK PILLOW	4700	3/01/97	---	30.4	10.7	18.6
ROUND TOP MTN	4020	2/25/97	51	18.5	--	--
RAGGED RIDGE	3330	2/25/97	40	13.5	4.0	7.4
RAINY PASS PILLOW	4780	3/01/97	---	46.6S	51.3	32.7
REX RIVER PILLOW	1900	3/01/97	---	36.0S	4.0	20.1
ROCKER PEAK PILLOW	8000	3/01/97	---	15.4	13.8	12.6
ROLAND SUMMIT	5120	2/28/97	129	49.7	26.7	28.6
RUSTY CREEK	4000	2/26/97	32	9.3	7.0	6.2
SADDLE MTN PILLOW	7900	3/01/97	---	33.0	32.7	21.9
SAGE CREEK SADDLE	4080	2/27/97	79	28.5	3.2	15.9
SALMON MDWS PILLOW	4500	3/01/97	---	15.8S	9.4	8.3
SASSE RIDGE PILLOW	4200	3/01/97	---	49.7S	29.0	27.4
SAVAGE PASS PILLOW	6170	3/01/97	---	32.1	27.6	22.9
SAWMILL RIDGE	4700	2/28/97	127	52.7	17.2	29.7
SHEEP CANYON PILLOW	4050	3/01/97	---	30.0S	9.4	30.1
SKALKAHO PILLOW	7260	3/01/97	---	32.4	28.9	20.8
SKITWISH RIDGE	5110	2/27/97	133	47.9	15.4	27.5
SKOOKUM CREEK PILLOW	3920	3/01/97	---	32.5S	3.1	39.4
SLIDE ROCK MOUNTAIN	7100	3/01/97	63	18.4	12.5	13.3
SPENCER MDW PILLOW	3400	3/01/97	---	42.2S	20.3	27.2
SPIRIT LAKE PILLOW	3100	3/01/97	---	3.4S	1.0	6.6
SPOTTED BEAR MTN.	7000	3/01/97	---	19.4E	13.4	13.3
STAHL PEAK PILLOW	6030	3/01/97	---	38.7	43.5	30.2
STAMPEDE PASS PILLOW	3860	3/01/97	---	56.0S	2.8	38.2
STEMILT SLIDE	5000	2/25/97	47	16.5	10.9	12.7
STEMPLE PASS	6600	2/25/97	44	12.3	7.6	8.5
STEVENS PASS PILLOW	4070	3/01/97	---	56.0S	30.0	34.7
STORM LAKE	7780	2/27/97	61	15.9	13.0	10.8
STRYKER BASIN	6180	2/27/97	107	38.8	34.0	28.5
STUART MOUNTAIN	7400	2/28/97	115	43.5	37.6	27.4
SUMMIT G.S.	4600	2/27/97	40	10.9	8.1	7.1
SUNSET PILLOW	5540	3/01/97	---	41.2	21.9	32.0
SURPRISE LKS PILLOW	4250	3/01/97	---	59.4S	28.8	37.5
TEN MILE LOWER	6600	2/24/97	35	9.1	4.2	6.3
TEN MILE MIDDLE	6800	2/24/97	46	12.9	9.4	9.5
THUNDER BASIN	4200	2/27/97	85	32.0	14.8	18.5
TINKHAM CREEK PILLOW	3000	3/01/97	---	44.0S	18.5	17.2
TOUCHET #2 PILLOW	5530	3/01/97	---	49.4	23.9	27.8
TRINKUS LAKE	6100	2/24/97	150	55.7	36.4	36.7
TROUGH #2 PILLOW	5310	3/01/97	---	12.1S	10.0	9.0
TRUMAN CREEK	4060	2/25/97	31	9.0	3.9	5.0
TV MOUNTAIN	6800	2/28/97	73	24.8	17.2	15.6
TWELVEMILE PILLOW	5600	3/01/97	---	24.9	13.1	16.4
TWIN CAMP	4100	2/28/97	91	33.5	15.5	21.8
TWIN CREEKS	3580	3/01/97	---	18.5E	9.3	10.7
TWIN LAKES PILLOW	6400	3/01/97	---	53.6	42.3	34.3
TWIN SPIRIT DIVIDE	3480	3/01/97	71	24.2	6.0	13.8
UPPER HOLLAND LAKE	6200	3/01/97	---	48.6E	30.5	30.4
UPPER WHEELER PILLOW	4400	3/01/97	---	15.3S	11.1	12.1
WARM SPRINGS PILLOW	7800	3/01/97	---	25.7	26.4	18.2
WEASEL DIVIDE	5450	2/27/97	102	35.8	40.4	29.5
WELLS CREEK PILLOW	4200	3/01/97	---	36.9S	14.6	43.4
WHITE PASS ES PILLOW	4500	3/01/97	---	45.9S	15.6	20.7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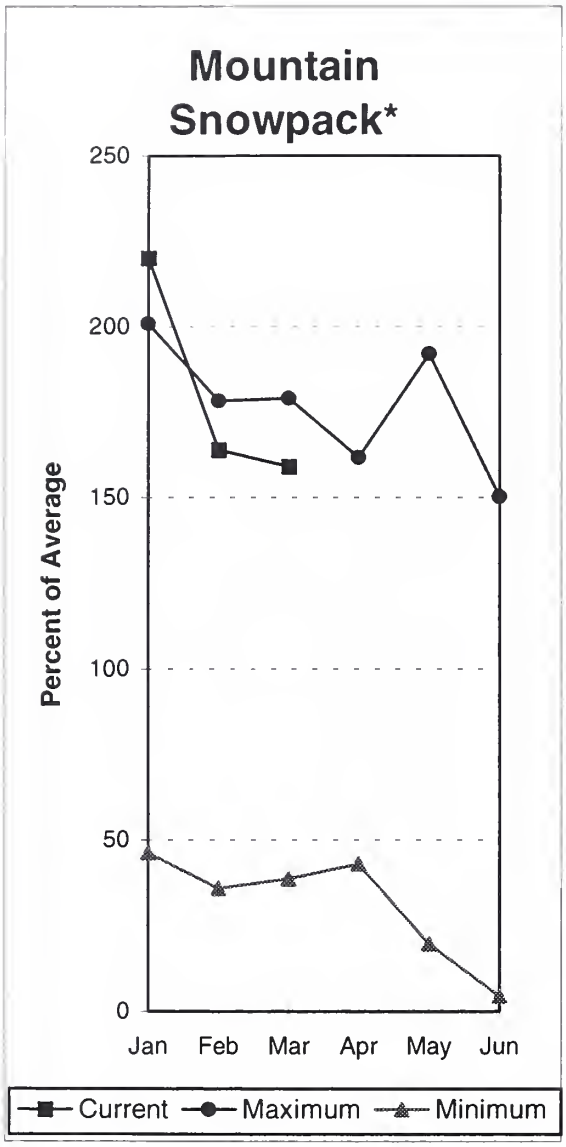
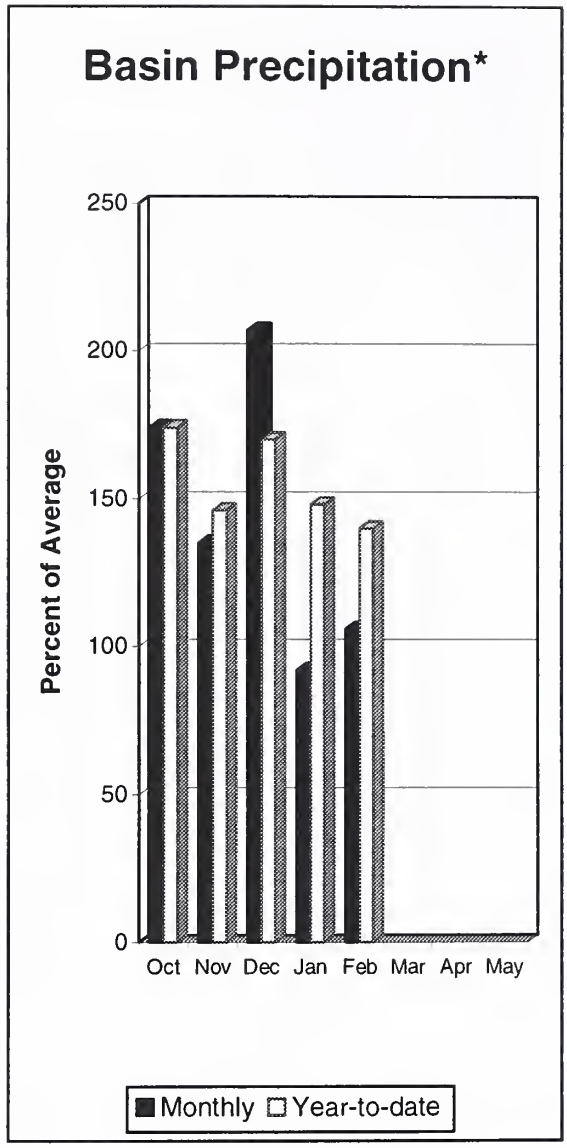
NORTH PUGET BASIN
METHOW-OKANOGAN BASIN
COLVILLE-KETTLE BASIN
CENTRAL PUGET BASIN
CHELAN-WENATCHEE BASIN
OLYMPIC BASIN
SPOKANE RIVER BASIN
WHITE-CEDAR-GREEN BASIN
YAKIMA RIVER BASIN
COWLITZ-LEWIS BASIN
WALLA WALLA BASIN
WHATCOM
SKAGIT
ISLAND
SAN JUAN
SNOHOMISH
CLALLAM
JEFFERSON
KING
KITSAP
MASON
GRAYS HARBOR
PIERCE
THURSTON
PACIFIC
LEWIS
WAHKIAKUM
COWLITZ
CLARK
SKAMANIA
KLICKITAT
YAKIMA
KITTITAS
CHELAN
DOUGLAS
OKANOGAN
FERRY
STEVENS
PEND OREILLE
LINCOLN
SPOKANE
GRANT
ADAMS
WHITMAN
BENTON
FRANKLIN
COLUMBIA
GARFIELD
ASOTIN
Wells Creek
Bellingham
Elbow Lake
Horts Pass
Salmon Meadows
Republic
Colville
Bunchgrass Meadows
Friday Harbor
Rainy Pass
Thunder Basin
Mt Vernon
Pork Creek Ridge
Okanogan
Moses Mtn
Newport
Caupeville
Port Townsend
Miners Ridge
Lyman Lake
Port Angeles
Everett
Pope Ridge
Quartz Peak
Mt. Crag
Alpine Meadows
Skookum Creek
Stevens Pass
Waterville
Davenport
Spokane
Seattle
Fish Lake
Olallie Meadows
Wenatchee
Mount Gardner
Rex River
Cougar Mtn
Tinkham Creek
Meadows
Sasse Ridge
Stampede Pass
Blewett Pass
Upper Wheeler
Grouse Camp
Trough #2
Ephrata
Moses Lake
Ritzville
Shelton
Tacoma
Olympia
Montesano
Corral Pass
Ellensburg
Morse Lake
Paradise Park
Bumping Ridge
Colfax
Pullman
Chehalis
South Bend
White Pass E.S.
Yakima
Green Lake
Pigtail Peak
Garfield
Pomeroy
Clarkston
Asotin
Dayton
Potato Hill
Lost Horse
Spirit Lake
Lone Pine Shelter
June Lake
Sheep Canyon
Spencer Meadow
Surprise Lakes
Cathlamet
Kelso
Prosser
Pasco
Touchet #2
Walla Walla
Goldendale
Stevenson
Vancouver
LEGEND
BASIN BOUNDARY
SNOTEL DATA SITES
CITIES
U.S. DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
WASHINGTON STATE OFFICE, SPOKANE
NRCS Snow Survey Sites
Washington
1997

Spokane River Basin





*Based on selected stations

The March 1 forecasts for summer runoff within the Spokane River Basin are 150% of average near Post Falls and 148% of average at Long Lake. The forecast is based on a basin snowpack that is 159% of average and precipitation that is 140% of average for the water year. Precipitation for February was near normal at 106% of average. Streamflow on the Spokane River at Long Lake was 131% of average for February. March 1 storage in Coeur d'Alene Lake was 146,500 acre feet, 98% of average, and 61% of capacity. Temperatures in the basin were near average during February. Snowpack at Quartz Peak SNOTEL site contained 30.4 inches of water, compared to the average March 1 reading of 18.6 inches.

For more information contact your local Natural Resources Conservation Service office.

Streamflow Forecasts - March 1, 1997

SPOKANE near Post Falls (2)	APR-SEP	3507	3860	4100	150	4340	4693	2730
	APR-JUL	3378	3724	3960	150	4196	4542	2633
SPOKANE at Long Lake	APR-JUL	3725	4094	4345	148	4596	4965	2936
	APR-SEP	4032	4415	4675	148	4935	5318	3159

SPOKANE RIVER BASIN
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
COEUR D'ALENE	238.5	146.5	293.5	149.1

SPOKANE RIVER BASIN
Watershed Snowpack Analysis - March 1, 1997

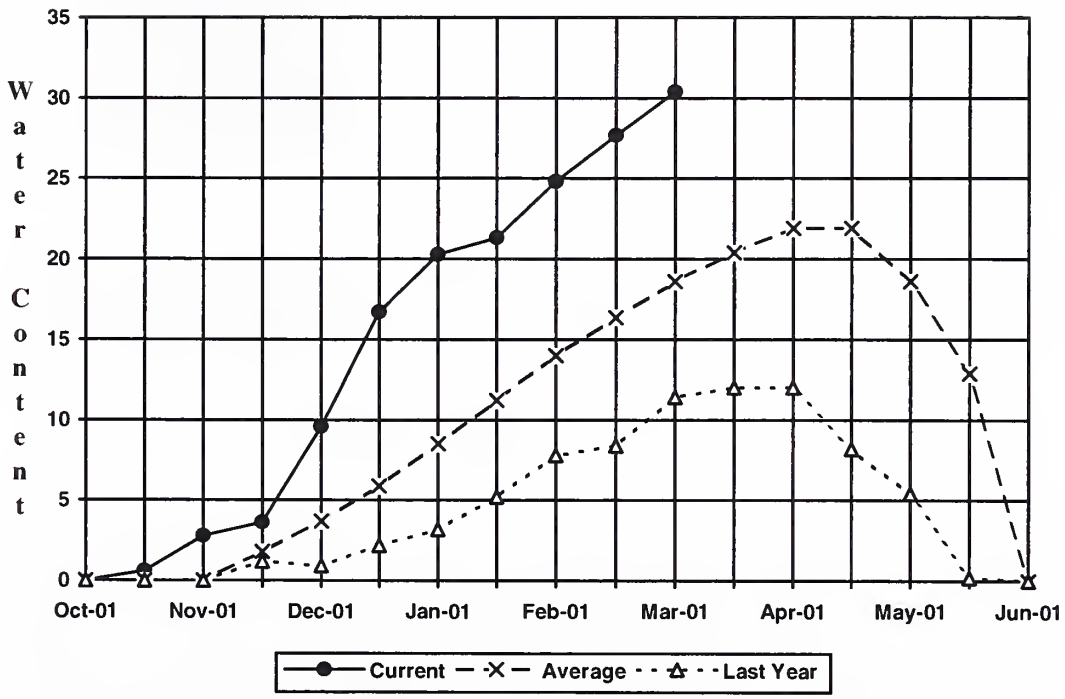
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
SPOKANE RIVER	17	228	159
NEWMAN LAKE	2	299	169

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

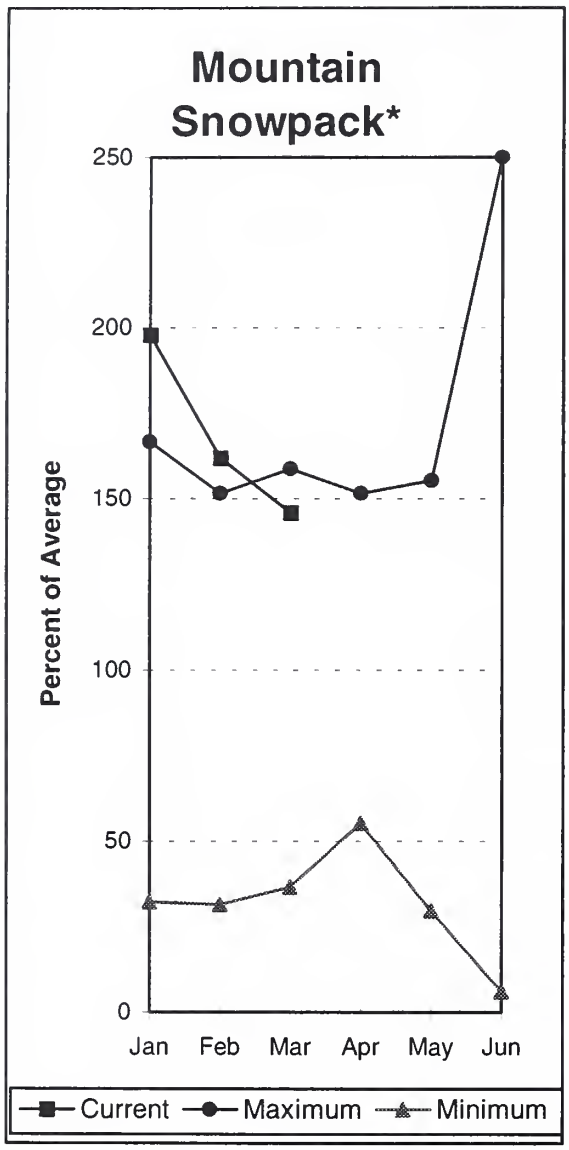
The average is computed for the 1961-1990 base period.

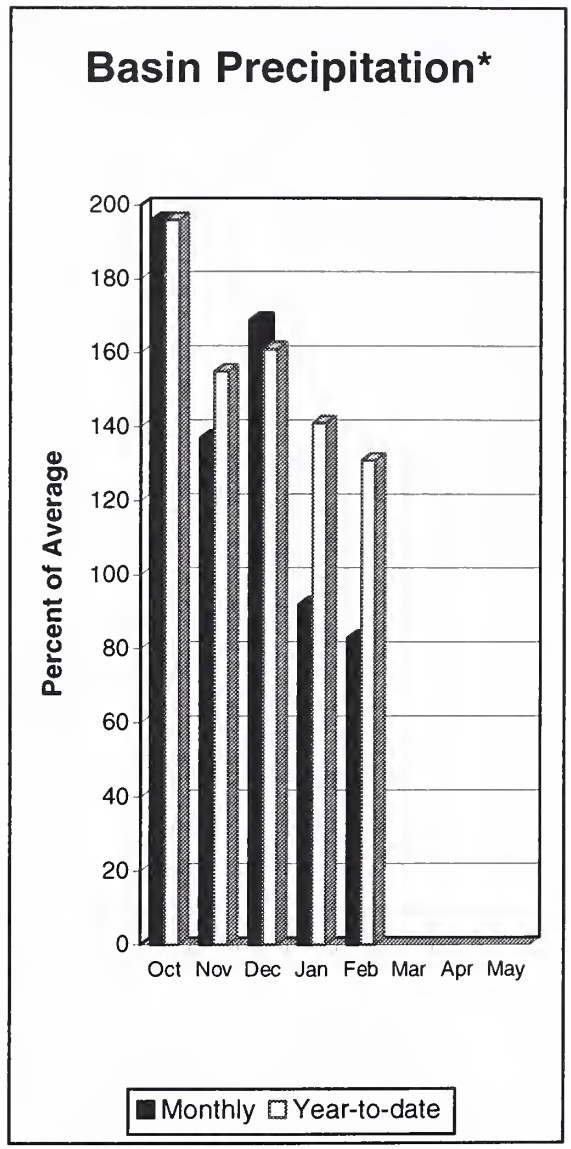
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

Quartz Peak SNOTEL
Elevation 4700 ft.



Colville - Pend Oreille River Basins





*Based on selected stations

The forecast for the Kettle River streamflow is for 145% of average; the Pend Oreille, below Box Canyon, 139%; and the Priest River, near the town of Priest River, 137% of average for the summer runoff period. The forecast for the Columbia River at Birchbank is for runoff to be 112% of average. February streamflow was 147% of average on the Pend Oreille River,116% on the Columbia at the International Boundary, and 271% on the Kettle River. March 1 snow cover was 146% of average in the Pend Oreille Basin and 13% of average in the Kettle River Basin. Snowpack at Bunchgrass Meadow SNOTEL site contained 37.9 inches of water, compared to the average March 1 reading of 22.7 inches. Precipitation during February was 83% of average, bringing the water year-to-date to 131% of average. Reservoir storage in Roosevelt and Banks lakes was reported to be 76% of average and 43% of capacity on February 1.

For more information contact your local Natural Resources Conservation Service office.

Streamflow Forecasts - March 1, 1997

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter ======>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	50% (Most Probable) (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
PEND OREILLE Lake Inflow (1,2)	APR-JUL	15325	17440	18400	140	19360	21475	13150
	APR-SEP	16737	19050	20100	140	21150	23463	14370
	APR-JUN	12998	14994	15900	140	16806	18802	11390
PRIEST nr Priest River (1,2)	APR-JUL	903	1052	1120	138	1188	1337	814
	APR-SEP	959	1118	1190	137	1262	1421	868
PEND OREILLE bl Box Canyon (1,2)	APR-JUL	15883	17751	18600	139	19449	21317	13380
	APR-SEP	17335	19374	20300	139	21226	23265	14590
	APR-JUN	13763	15370	16100	139	16830	18437	11570
CHAMOKANE CREEK near Long Lake	MAY-AUG	8.39	10.71	12.29	144	13.87	16.19	8.52
COLVILLE at Kettle Falls	APR-SEP	168	191	206	157	221	244	131
	APR-JUL	155	176	190	158	204	225	120
	APR-JUN	144	162	175	158	188	206	111
KETTLE near Laurier	APR-SEP	2379	2564	2690	145	2816	3001	1854
	APR-JUL	2270	2437	2550	145	2663	2830	1761
	APR-JUN	2000	2146	2246	142	2346	2492	1585
COLUMBIA at Birchbank (1,2)	APR-JUL	34170	37629	39200	112	40771	44230	35140
	APR-SEP	42601	46933	48900	112	50867	55199	43810
	APR-JUN	25160	27663	28800	112	29937	32440	25670
COLUMBIA at Grand Coulee Dm (1,2)	APR-SEP	69343	76397	79600	123	82803	89857	64850
	APR-JUL	58400	64314	67000	123	69686	75600	54543
	APR-JUN	45899	50507	52600	123	54693	59301	42756

COLVILLE - PEND OREILLE RIVER BASINS
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
ROOSEVELT	5232.0	1867.2	3964.4	2763
BANKS	715.0	681.3	681.6	606

COLVILLE - PEND OREILLE RIVER BASINS
Watershed Snowpack Analysis - March 1, 1997

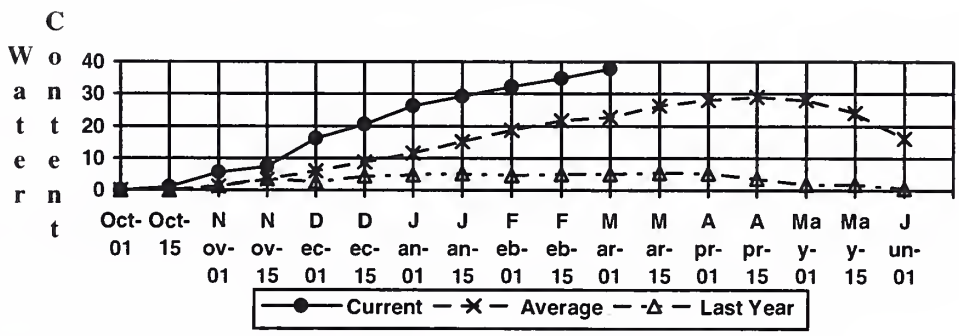
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
COLVILLE RIVER	0	0	0
PEND OREILLE RIVER	92	137	146
KETTLE RIVER	7	117	135

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

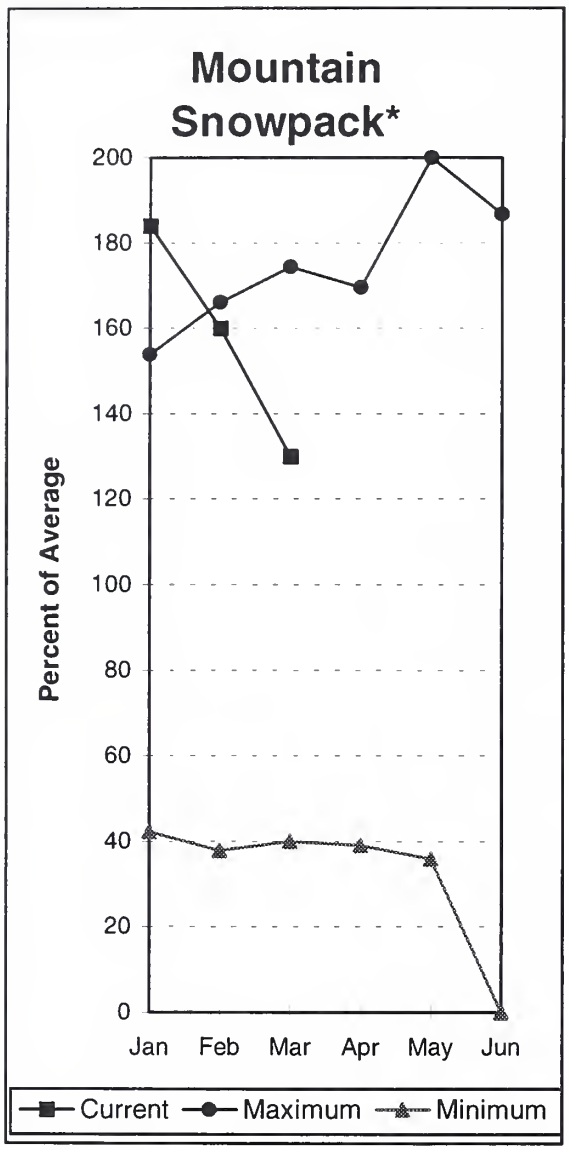
The average is computed for the 1961-1990 base period.

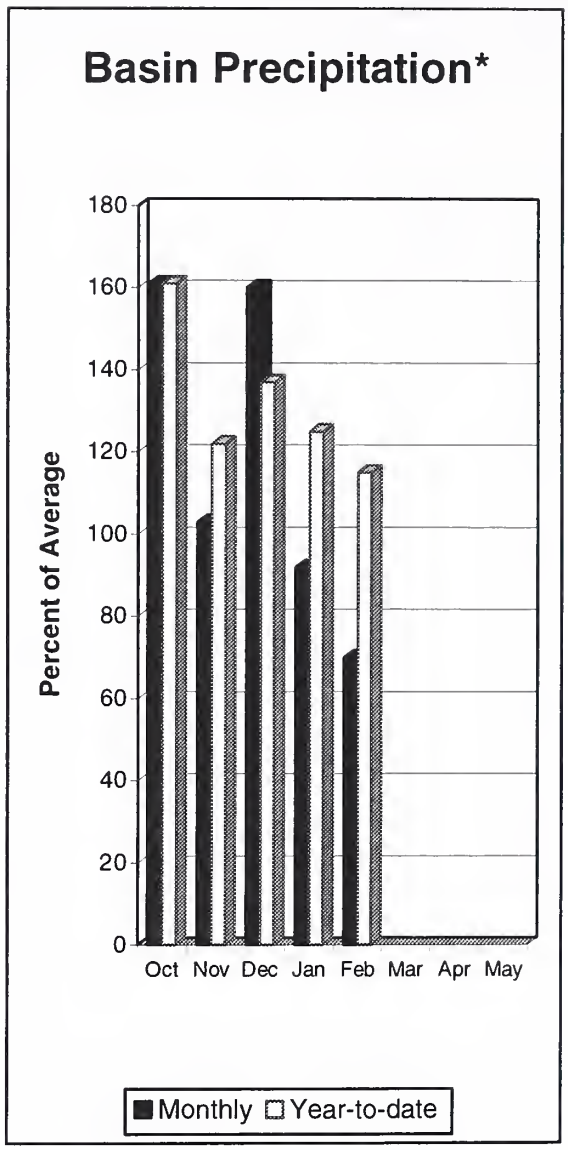
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

Bunchgrass Meadow SNOTEL
Elevation 5000 ft.



Okanogan - Methow River Basins





*Based on selected stations

Summer runoff forecast for the Okanogan River is 132% of average; the Similkameen River, 137%, the Methow River, 137%, and Salmon Creek, 134% of average. March 1 snow cover on the Okanogan was 130% of average, the Methow; 142%, the Similkameen River; 122%, and Conconully Lake; 157% of average. February precipitation in the Okanogan-Methow was 70% of average, with water year-to-date remaining above average at 115%. February streamflow on the Methow River was 119% of average, 186% on the Okanogan River, and 128% on the Similkameen. Snow-water-content at the Salmon Meadows SNOTEL near Conconully, was 15.8 inches. Average for this site is 8.3 inches. Storage in the Conconully Reservoirs was 18,200 acre feet, which is 77% of capacity and 130% of the March 1 average.

For more information contact your local Natural Resources Conservation Service office.

Streamflow Forecasts - March 1, 1997

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	50% (Most Probable) (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
SIMILKAMEEN near Nighthawk (1)	APR-SEP	1557	1807	1920	137	2033	2283	1399
	APR-JUL	1446	1683	1790	137	1897	2134	1304
	APR-JUN	1224	1431	1525	137	1619	1826	1113
OKANOGAN near Tonasket (1)	APR-SEP	1412	1913	2140	132	2367	2868	1623
	APR-JUL	1272	1728	1935	132	2142	2598	1466
	APR-JUN	1083	1459	1630	132	1801	2177	1233
SALMON CREEK near Conconully	APR-JUL	12.7	20	26	134	31	38	19.1
	APR-SEP	13.5	21	27	134	32	40	20
METHOW RIVER near Pateros	APR-SEP	1152	1234	1290	137	1346	1428	942
	APR-JUL	1073	1149	1200	138	1251	1327	873
	APR-JUN	894	969	1020	137	1071	1146	746

OKANOGAN - METHOW RIVER BASINS
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
SALMON LAKE	10.5	8.8	8.3	8.0
CONCONULLY RESERVOIR	13.0	9.4	10.0	6.0

OKANOGAN - METHOW RIVER BASINS
Watershed Snowpack Analysis - March 1, 1997

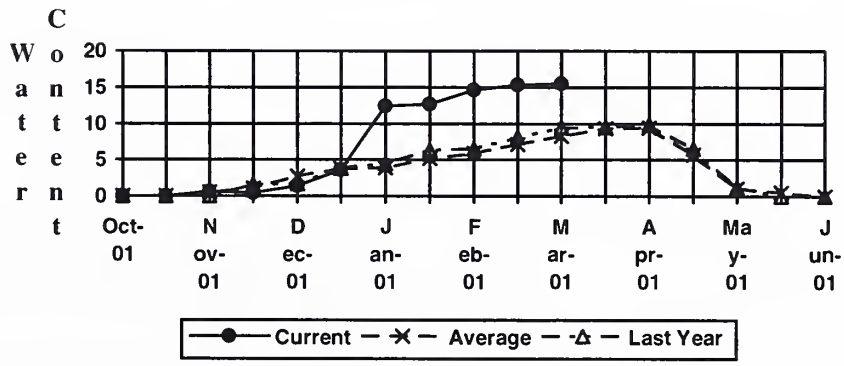
Watershed	Number of Data Sites	This Year as % of Last Yr	This Year as % of Average
OKANOGAN RIVER	22	115	130
OMAK CREEK	1	106	130
SANPOIL RIVER	0	0	0
SIMILKAMEEN RIVER	5	113	121
CONCONULLY LAKE	3	143	157
METHOW RIVER	5	104	142

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

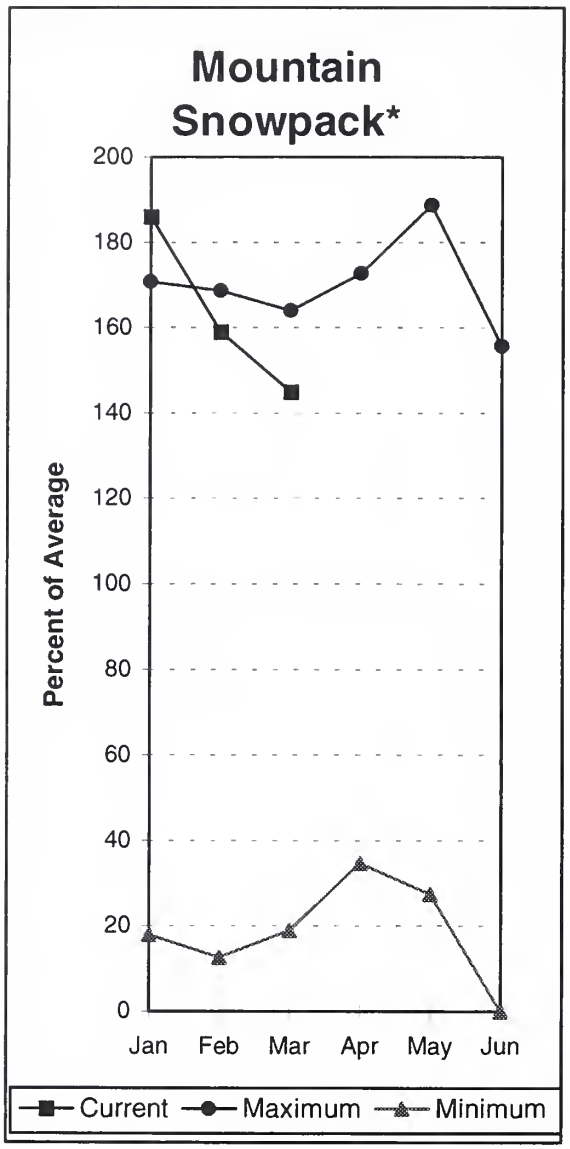
The average is computed for the 1961-1990 base period.

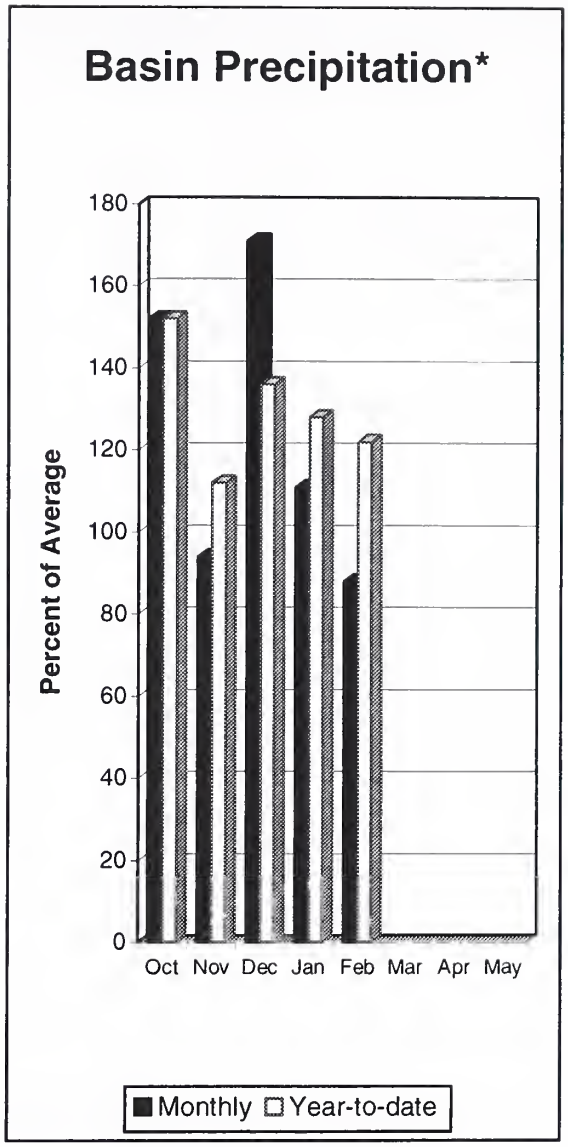
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

Salmon Meadows SNOTEL
Elevation 4500 ft.



Wenatchee - Chelan River Basins





*Based on selected stations

Precipitation during February was 88% of average in the basin and 122% for the year to date. Runoff for the Entiat River is forecast to be 132% of average for the summer. The April-September forecast for the Chelan River is for 137%, for the Wenatchee River it is 134%, and 135% on the Stehekin. Icicle, Stemilt and Squilchuck creeks are all expected to be above average this summer. February streamflows on the Chelan and Wenatchee rivers averaged 112% of normal. March 1 snowpack in the Wenatchee Basin was 145% of average, which is 135% of last year. The Chelan Basin was 136% of average along with Trough SNOTEL on Colockum Ridge at 134% and Stemilt Creek at 128% of average. Snowpack in the Entiat River Basin was at 170% of average. Reservoir storage in Lake Chelan was 224,000 acre feet or 133% of March 1 average and 33% of capacity. Lyman Lake SNOTEL had the most snow water with 65.2 inches of water. This site would normally have 48.4 inches. Last year it had 63.1 inches.

For more information contact your local Natural Resources Conservation Service office.

Streamflow Forecasts - March 1, 1997

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
CHELAN RIVER near Chelan	APR-SEP	1427	1524	1590	137	1656	1753	1160
	APR-JUL	1263	1345	1400	137	1455	1537	1024
	APR-JUN	990	1061	1110	137	1159	1230	812
STEHEKIN near STEHEKIN	APR-SEP	1011	1076	1120	135	1164	1229	827
	APR-JUL	859	910	945	135	980	1031	701
	APR-JUN	652	696	726	135	756	800	538
ENTIAT RIVER near Ardenvoir	APR-SEP	269	287	300	132	313	331	227
	APR-JUL	246	263	274	133	285	302	206
	APR-JUN	198	213	223	132	233	248	169
WENATCHEE at Plain	APR-SEP	1435	1530	1595	134	1660	1755	1190
	APR-JUL	1313	1386	1435	134	1484	1557	1072
	APR-JUN	1073	1125	1160	134	1195	1247	864
WENATCHEE R. at Peshastin	APR-SEP	1657	1974	2190	134	2406	2723	1636
	APR-JUL	1508	1795	1990	134	2185	2472	1485
	APR-JUN	1224	1454	1610	134	1766	1996	1204
STEMILT nr Wenatchee (miners in)	MAY-SEP	133	159	177	128	195	221	138
COLUMBIA R. bl Rock Island Dam (2)	APR-SEP	76727	83558	88200	125	92842	99673	70485
	APR-JUL	65106	70878	74800	125	78722	84494	59736
	APR-JUN	51222	55734	58800	125	61866	66378	47007

WENATCHEE - CHELAN RIVER BASINS
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
CHELAN LAKE	676.1	224.0	470.0	168.1

WENATCHEE - CHELAN RIVER BASINS
Watershed Snowpack Analysis - March 1, 1997

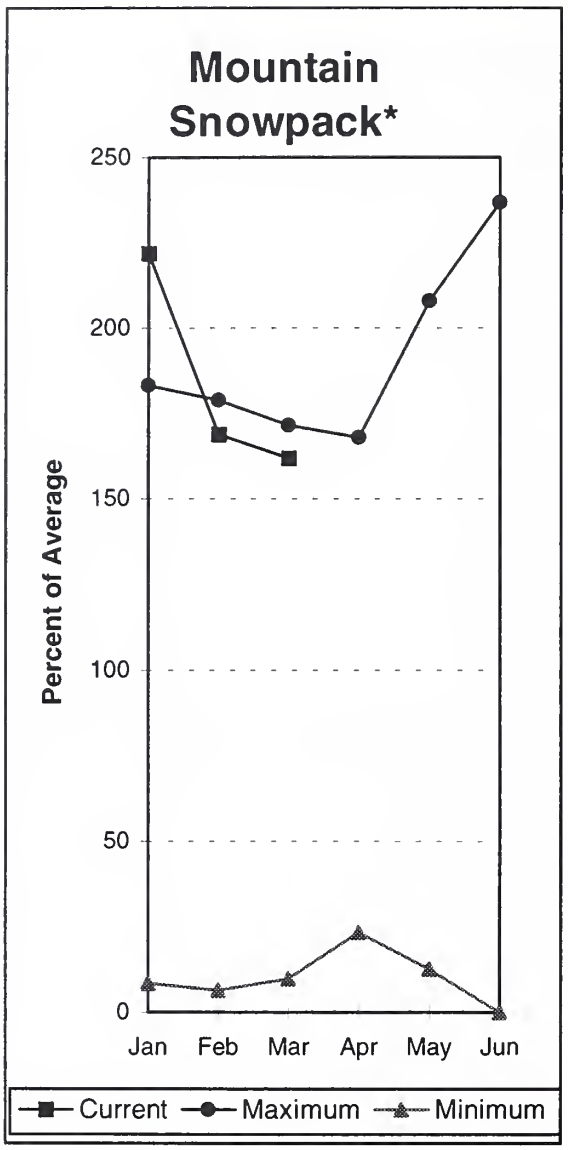
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
CHELAN LAKE BASIN	5	104	137
ENTIAT RIVER	2	118	170
WENATCHEE RIVER	12	144	146
SQUILCHUCK CREEK	0	0	0
STEMILT CREEK	2	145	128
COLOCKUM CREEK	1	121	134

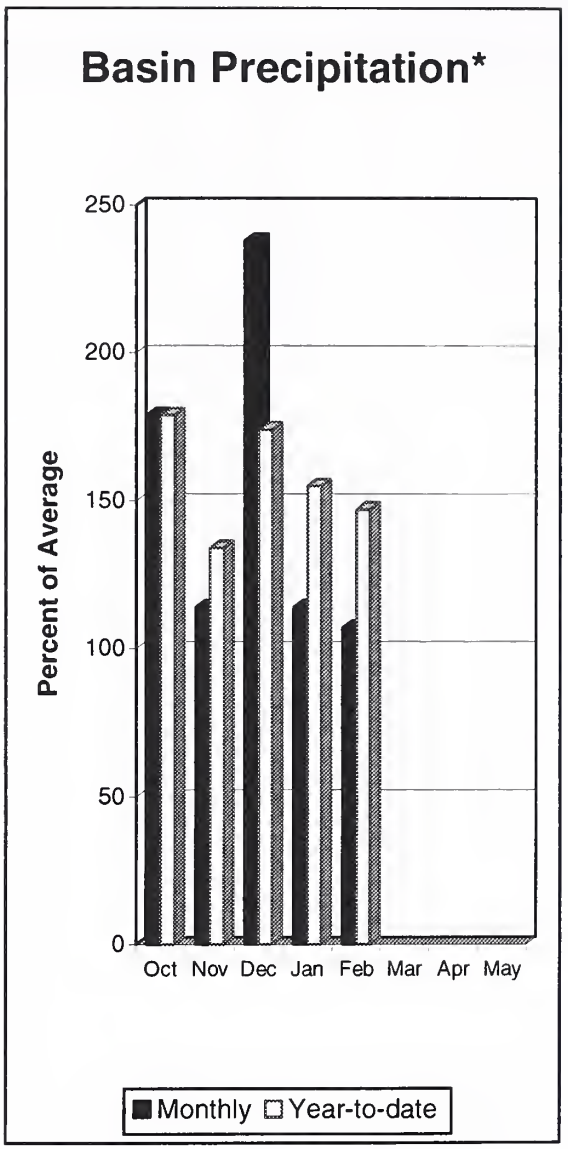
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

Yakima River Basin





*Based on selected stations

March 1 reservoir storage for the five major reservoirs was 625,200 acre feet, 90% of average. March 1 summer streamflow forecasts are for much above average in the Yakima Basin. Forecasts for the Yakima River at Cle Elum are for 139% of average; Naches River, 141%; the Yakima River near Parker, 140%; Ahtanum Creek, 141%; and the Tieton River, 135%. The Klickitat River near Glenwood is forecast at 151% of average flows this summer. February streamflows within the basin were; the Yakima River near Parker 151% of average; the Yakima near Cle Elum, 153%; and the Naches River at 128%. March 1 snowpack was 162% based upon 14 snow courses and SNOTEL readings within the Yakima Basin. Precipitation was 107% of average for February and 147% for the water year-to-date. Volume forecasts for the Yakima Basin are for natural flow. As such, they may differ from the U.S. Bureau of Reclamation's forecast for the total water supply available which includes irrigation return flow.

For more information contact your local Natural Resources Conservation Service office.

Streamflow Forecasts - March 1, 1997

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter ======>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	50% (Most Probable) (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
KEECHELUS LAKE INFLOW	APR-JUL	150	162	170	137	178	190	124
	APR-SEP	160	174	184	136	194	208	135
	APR-JUN	130	139	145	133	151	160	109
KACHESS LAKE INFLOW	APR-JUL	141	152	160	144	168	179	111
	APR-SEP	149	161	169	143	177	189	118
	APR-JUN	126	135	141	142	147	157	99
CLE ELUM LAKE INFLOW	APR-JUL	537	561	577	141	593	617	409
	APR-SEP	579	609	630	141	651	681	448
	APR-JUN	450	472	486	141	500	522	345
YAKIMA at Cle Elum	APR-JUN	906	952	983	136	1014	1060	721
	APR-JUL	1077	1131	1168	140	1205	1259	832
	APR-SEP	1167	1228	1270	139	1312	1373	915
BUMPING LAKE INFLOW	APR-SEP	167	181	190	140	199	213	136
	APR-JUL	153	166	174	140	182	195	124
	APR-JUN	126	138	146	140	154	166	104
AMERICAN RIVER near Nile	APR-SEP	160	170	176	149	182	192	118
	APR-JUL	146	155	161	148	167	176	109
	APR-JUN	114	123	129	140	135	143	92
RIMROCK LAKE INFLOW	APR-SEP	284	305	320	135	335	356	238
	APR-JUL	243	259	270	135	281	297	200
	APR-JUN	195	209	219	135	229	243	162
NACHES near Naches	APR-SEP	1049	1121	1170	141	1219	1291	832
	APR-JUL	962	1026	1070	142	1114	1178	755
	APR-JUN	831	887	925	142	963	1019	651
AHTANUM CREEK nr Tampico (2)	APR-SEP	47	58	65	141	72	83	46
	APR-JUL	43	52	59	141	66	75	42
	APR-JUN	37	45	51	142	57	65	36
YAKIMA near Parker	APR-SEP	2524	2683	2790	140	2898	3056	1994
	APR-JUL	2319	2457	2550	141	2643	2781	1805
	APR-JUN	2060	2173	2250	141	2327	2440	1597
KLICKITAT near Glenwood	APR-JUN	146	159	167	152	175	188	110
	APR-SEP	182	199	211	151	223	240	140

YAKIMA RIVER BASIN
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
KEECHELUS	157.8	119.7	137.7	105.0
KACHESS	239.0	115.5	216.6	179.0
CLE ELUM	436.9	251.4	375.0	273.0
BUMPING LAKE	33.7	5.3	18.6	10.0
RIMROCK	198.0	133.3	163.6	130.0

YAKIMA RIVER BASIN
Watershed Snowpack Analysis - March 1, 1997

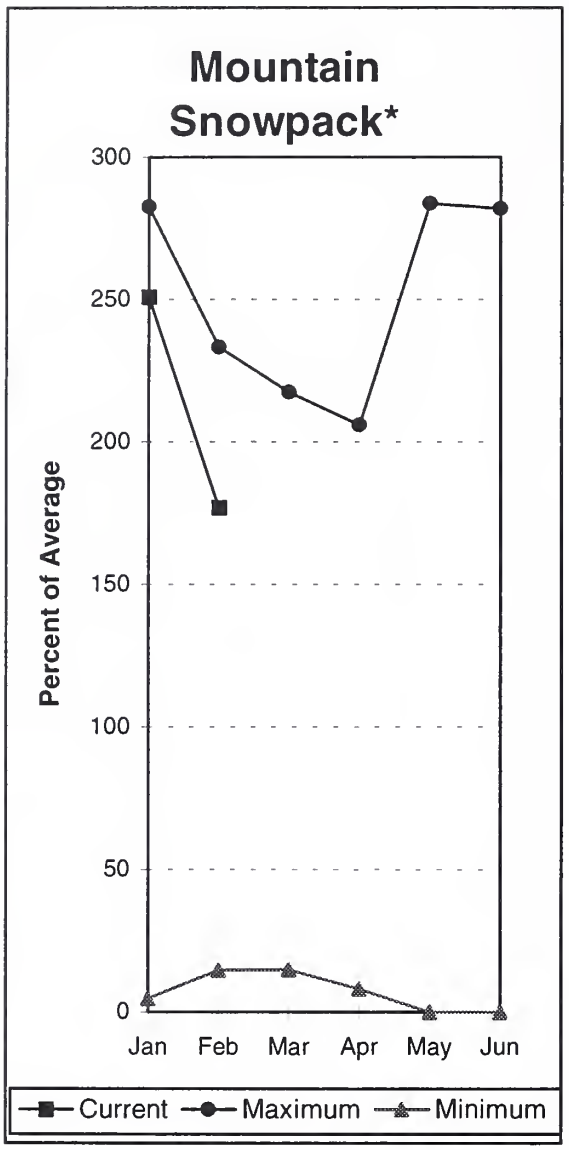
Watershed	Number of Data Sites	This Year as % of Last Yr	Average
YAKIMA RIVER	18	184	161
AHTANUM CREEK	2	169	140

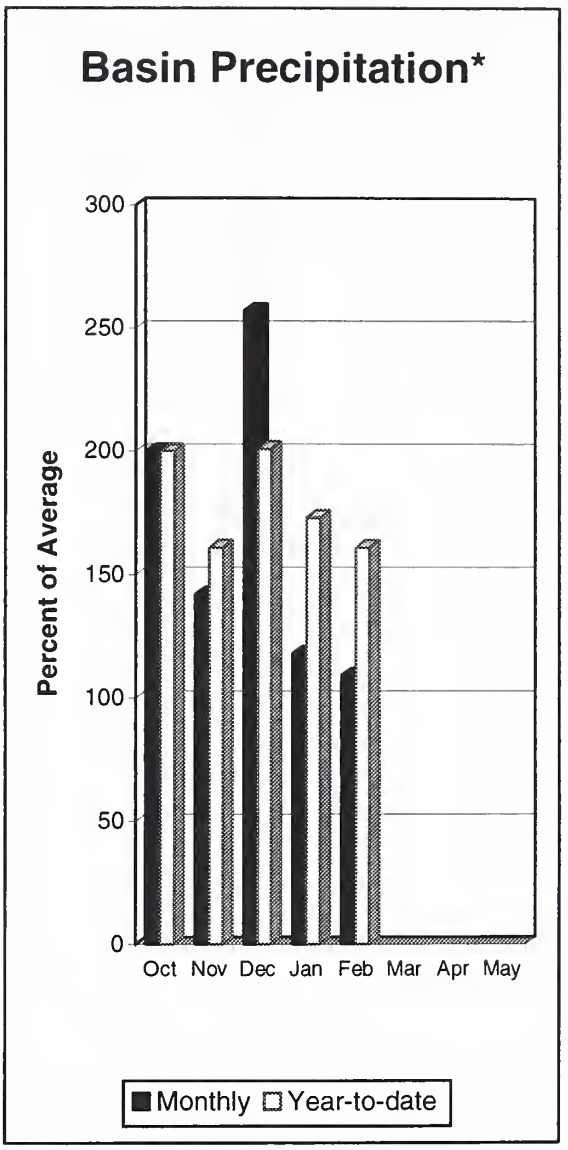
* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural flow - actual flow may be affected by upstream water management.

Walla Walla River Basin





*Based on selected stations

February precipitation was 109% of average, bringing the year-to-date precipitation to 161% of average. March 1 snowpack was at 160% of average. The forecast is for 121% of average streamflow in the Walla Walla River for the coming summer, for the Grande Ronde at Troy, 137%, and 150% for Mill Creek. February streamflow was 271% of average for the Walla Walla River, 185% for the Snake River, and 175% for the Grande Ronde River near Troy. The Touchet SNOTEL site had 49.4 inches of snow-water-equivalent. The average March 1 reading for this site is 27.8 inches. High Ridge SNOTEL near Tollgate, Oregon contained 34.5 inches of water, compared to the March 1 normal of 21.6.

For more information contact your local Natural Resources Conservation Service office.

Streamflow Forecasts - March 1, 1997

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
GRANDE RONDE at Troy (1)	MAR-JUL	1590	1893	2030	138	2167	2470	1471
	APR-SEP	1401	1675	1800	137	1925	2199	1312
SNAKE blw Lower Granite Dam (1,2)	APR-JUL	25330	30329	32600	151	34871	39870	21650
	APR-SEP	28831	34449	37000	152	39551	45169	24360
MILL CREEK at Walla Walla	APR-SEP	18.2	23	26	150	29	33	17.1
	APR-JUL	18.0	22	25	150	28	33	16.9
	APR-JUN	17.7	22	25	150	28	32	16.7
SF WALLA WALLA near Milton-Freewater	APR-JUL	54	60	64	121	68	74	53
	APR-SEP	69	75	80	121	85	91	66
COLUMBIA R. at The Dalles (2)	APR-SEP	109791	120633	128000	129	135367	146209	98982
	APR-JUL	93441	102705	109000	129	115295	124559	84760
	APR-JUN	76311	83807	88900	129	93993	101489	68925

WALLA WALLA RIVER BASIN
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg

WALLA WALLA RIVER BASIN
Watershed Snowpack Analysis - March 1, 1997

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
WALLA WALLA RIVER	1	205	160

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

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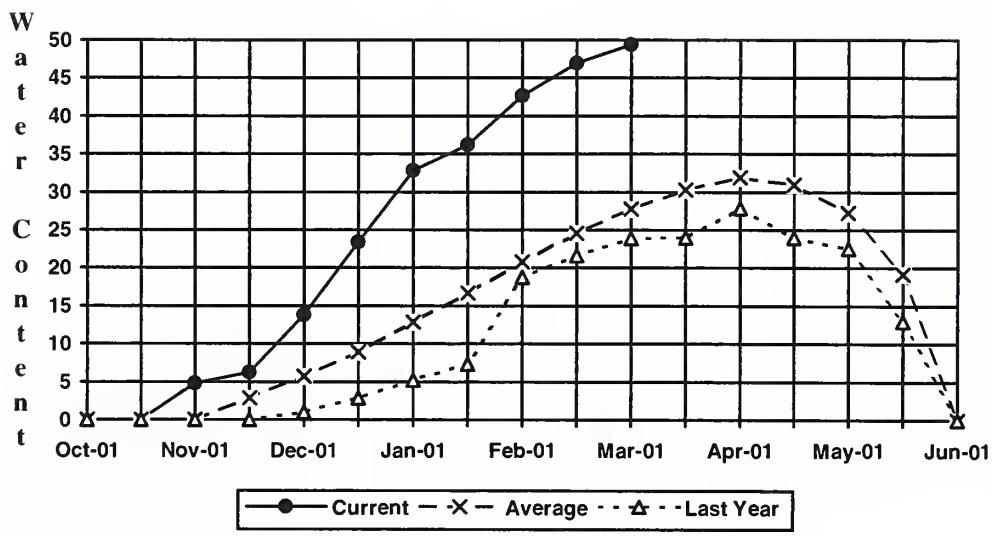
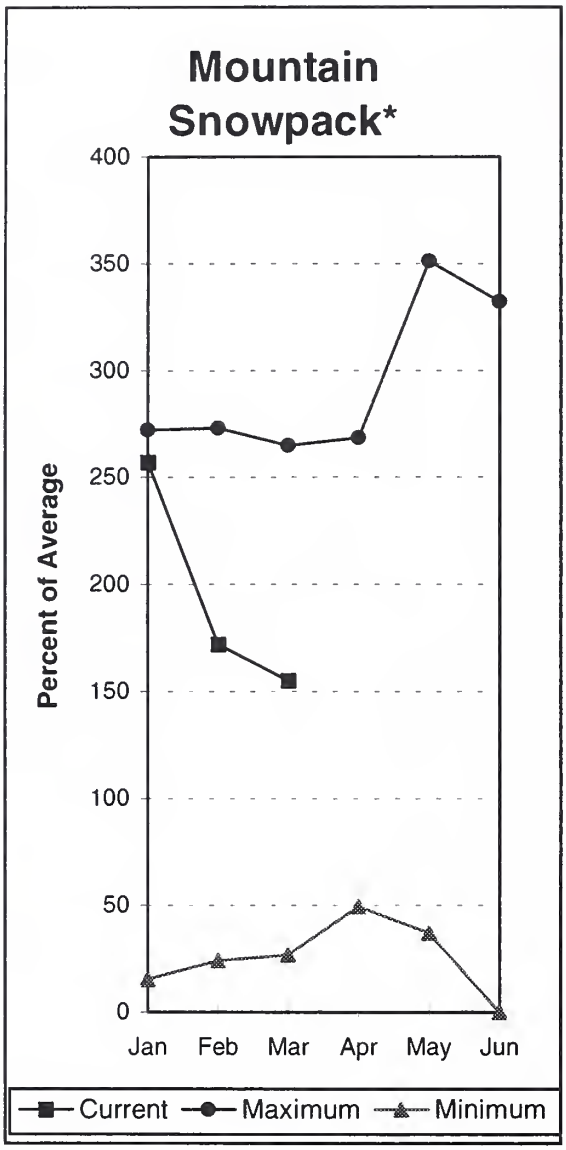
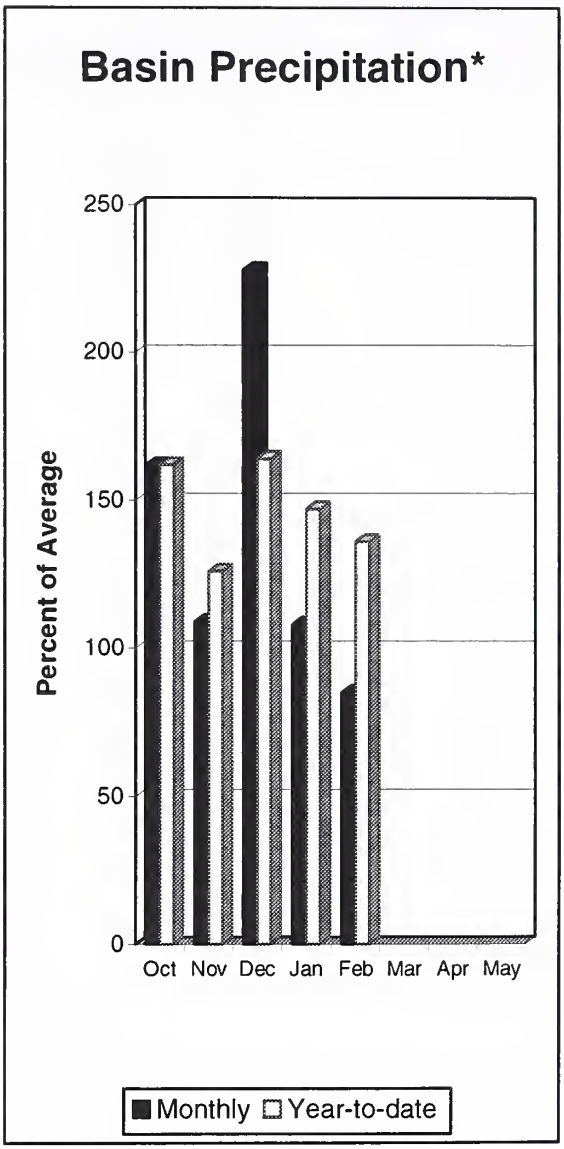
(2) - The value is natural flow - actual flow may be affected by upstream water management.

Touchet #2 SNOTEL
Elevation 5530 ft.



Cowlitz - Lewis River Basins





*Based on selected stations

The forecast for summer runoff in the Lewis River Basin is 128% of average. The Cowlitz River is forecast for 116% of average runoff. February streamflow for the Cowlitz River was 122% of average, and 99% for the Lewis River. February precipitation was 85% of average, 136% of average for the water-year. March 1 snow cover for the Cowlitz River was 156% and the Lewis River was 153% of average. The Paradise Park SNOTEL recorded the most water content for the basin and the state with 86.8 inches of water. Average March 1 water content is 47.9 inches. The previous maximum March 1 snow water equivelent ever recorded at Paradise Park SNOTEL was 62.4 inches in 1995. Calculated snow depth at Paradise was 220 inches on March 1, 1997.

For more information contact your local Natural Resources Conservation Service office.

Streamflow Forecasts - March 1, 1997

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
LEWIS at Ariel (2)	APR-SEP	1249	1422	1540	128	1658	1831	1206
	APR-JUL	1085	1254	1369	130	1484	1653	1053
	APR-JUN	946	1106	1215	130	1324	1484	935
COWLITZ R. bl Mayfield Dam (2)	APR-SEP	1573	1994	2280	116	2566	2987	1970
	APR-JUL	1382	1750	2000	116	2250	2618	1731
	APR-JUN	1181	1496	1710	116	1924	2239	1477
COWLITZ R. at Castle Rock (2)	APR-SEP	2047	2603	2980	112	3357	3913	2667
	APR-JUL	1786	2271	2600	112	2929	3414	2325
	APR-JUN	1530	1947	2230	112	2513	2930	1995
KLICKITAT near Glenwood	APR-JUN	146	159	167	152	175	188	110
	APR-SEP	182	199	211	151	223	240	140

COWLITZ - LEWIS RIVER BASINS
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg

COWLITZ - LEWIS RIVER BASINS
Watershed Snowpack Analysis - March 1, 1997

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
LEWIS RIVER	4	246	153
COWLITZ RIVER	7	181	156

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

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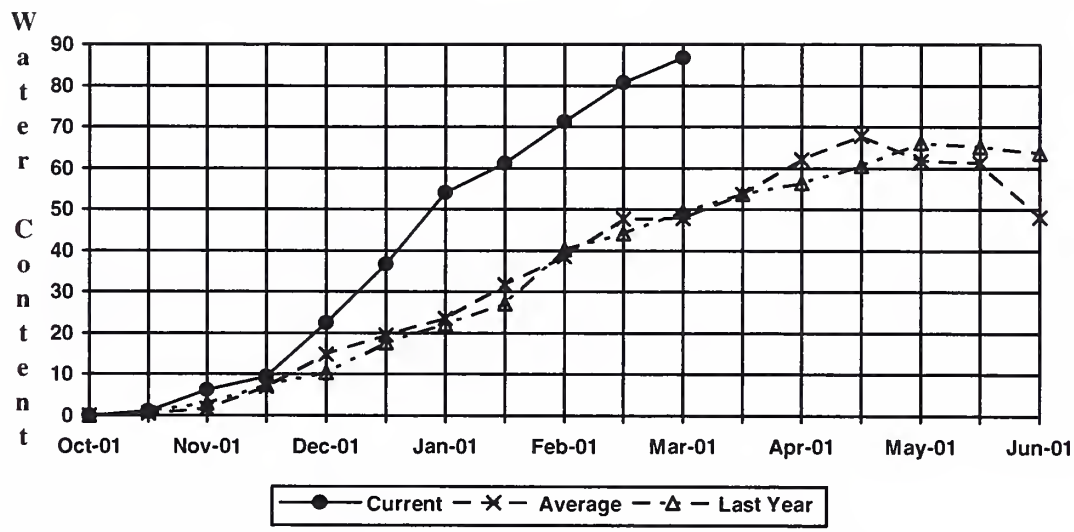
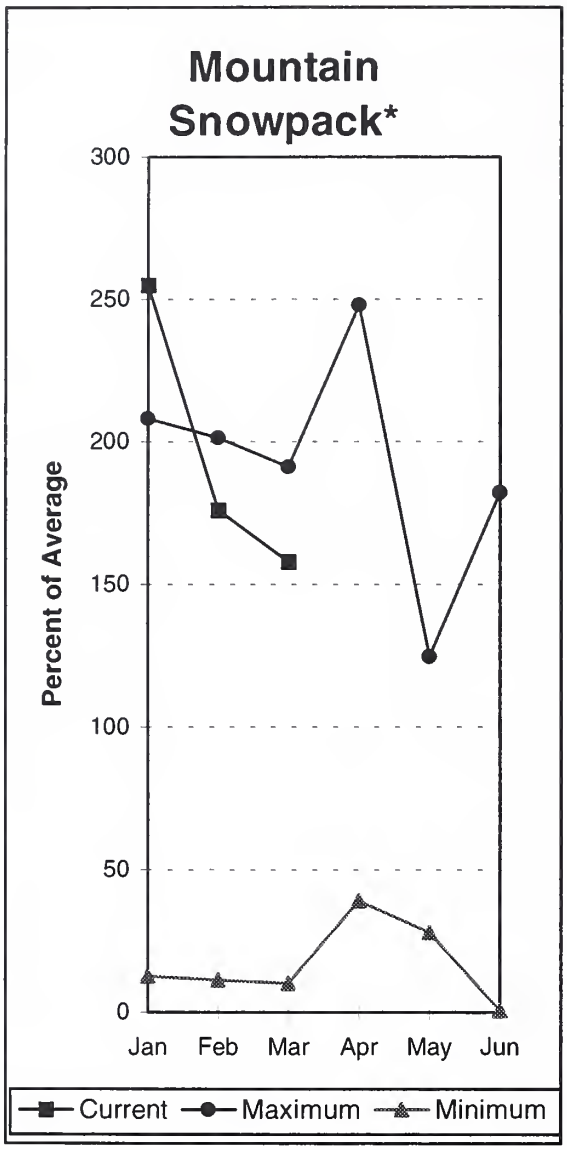
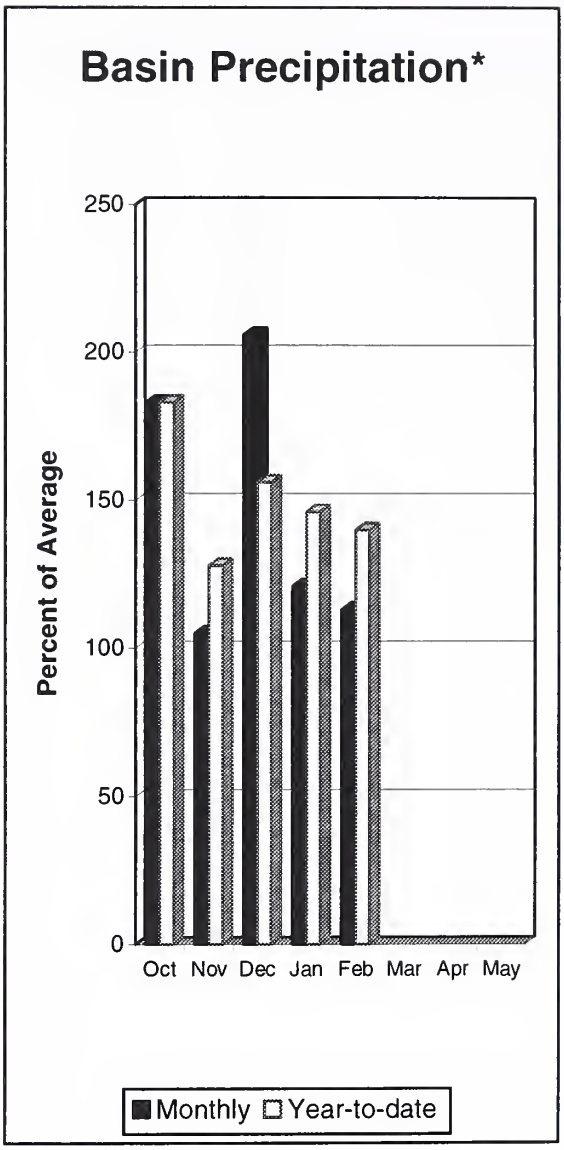
(2) - The value is natural flow - actual flow may be affected by upstream water management.

Paridise SNOTEL
Elevation 5120 ft.



White - Green River Basins





*Based on selected stations

Summer runoff is forecast to be 128% of average for the Green River. The White River should also experience above normal flows this summer. March 1 snowpack was 156% of average in the White River Basin and 159% in the Green River Basin. Water content on March 1 at the Morse Lake SNOTEL, at an elevation of 5,400 feet, was 71.4 inches. This site has a March 1 average of 38.5 inches. Cayuse Pass snow course had 202 inches of snow for a water content of 85.6 inches on February 25. February precipitation was 113% of average, bringing the water year-to-date to 140% of average for the basins.

For more information contact your local Natural Resources Conservation Service office.

Streamflow Forecasts - March 1, 1997

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter ======>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
GREEN RIVER below Howard Hanson Dam	APR-JUL	299	321	335	130	349	371	257
	APR-SEP	326	349	365	128	381	404	285
	APR-JUN	269	290	305	130	320	341	234

WHITE - GREEN RIVER BASINS
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg

WHITE - GREEN RIVER BASINS
Watershed Snowpack Analysis - March 1, 1997

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
WHITE RIVER	3	152	156
GREEN RIVER	7	337	159

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

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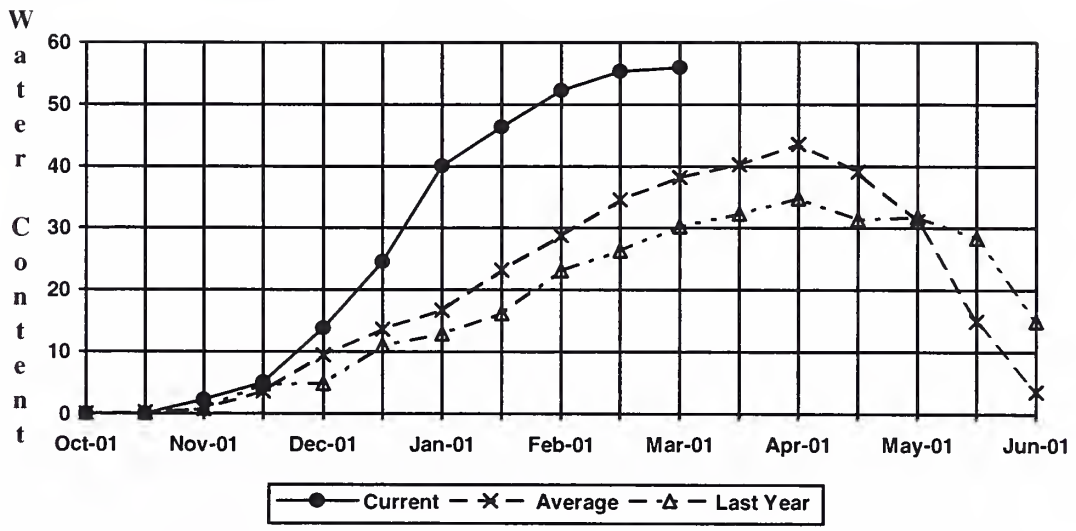
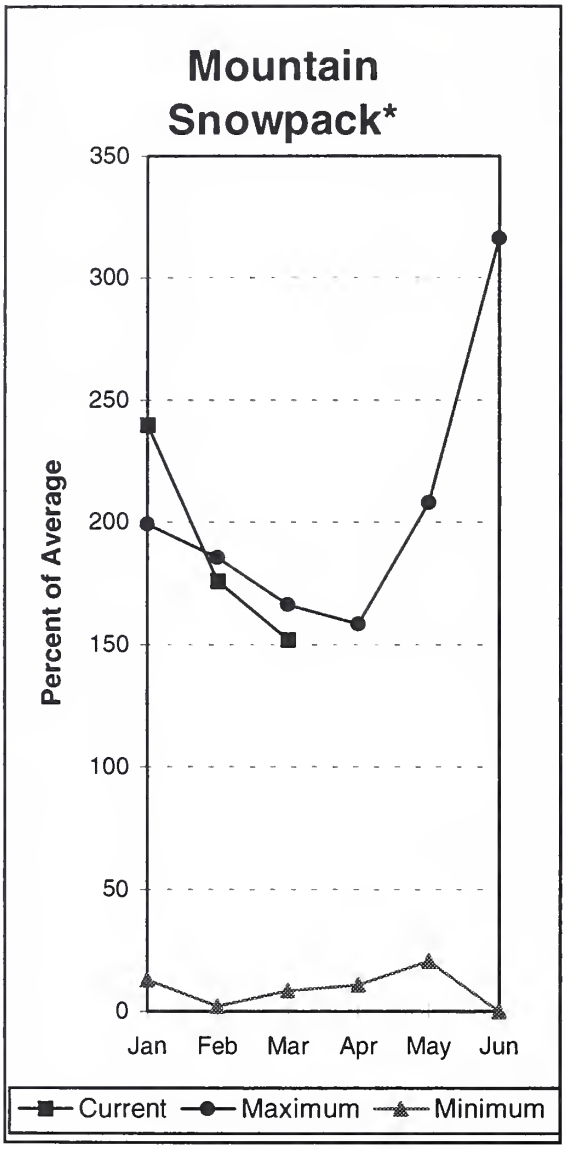
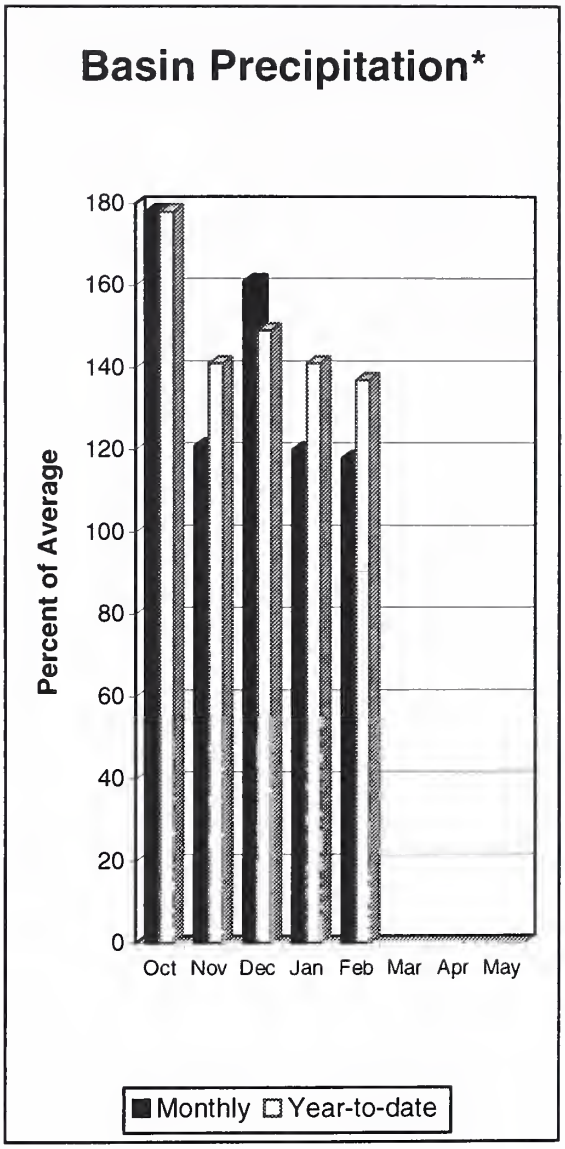
Stampede Pass SNOTEL
Elevation 3860 ft.



Central Puget Sound River Basins





*Based on selected stations

Forecast for spring and summer flows are: 123% for the Cedar River near Cedar Falls, 122% for the Rex River, 120% for the South Fork of the Tolt River and 124% for the Cedar River at Cedar Falls. Basin-wide precipitation for February was 118% of average, bringing water-year-to-date to 137% of average. March 1 snow cover in the Cedar River Basin was 206%, the Tolt River Basin was 120%, the Snoqualmie River Basin was 136%, and the Skykomish River Basin was 147% of average. Stevens Pass SNOTEL, at 4,070 feet, had 56 inches of water content. Average March 1 water content is 34.7 inches.

For more information contact your local Natural Resources Conservation Service office.

Streamflow Forecasts - March 1, 1997

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
CEDAR RIVER near Cedar Falls	APR-JUL	82	90	96	124	101	110	77
	APR-SEP	90	99	104	123	110	119	85
	APR-JUN	70	77	82	121	87	94	68
REX RIVER near Cedar Falls	APR-JUL	26	30	33	122	35	39	27
	APR-SEP	30	34	37	122	39	43	30
	APR-JUN	26	29	31	122	33	36	25
CEDAR RIVER at Cedar Falls	APR-JUL	82	95	103	126	112	125	82
	APR-SEP	81	94	103	124	112	125	83
	APR-JUN	76	89	97	122	106	119	80
SOUTH FORK TOLT near Index	APR-JUL	15.6	17.2	18.2	120	19.2	21	15.2
	APR-SEP	18.1	20	21	120	23	25	17.8
	APR-JUN	13.4	14.8	15.7	120	16.6	18.0	13.1

CENTRAL PUGET SOUND RIVER BASINS
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg

CENTRAL PUGET SOUND RIVER BASINS
Watershed Snowpack Analysis - March 1, 1997

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
CEDAR RIVER	6	341	206
TOLT RIVER	3	279	120
SNOQUALMIE RIVER	6	312	141
SKYKOMISH RIVER	4	212	151

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

The average is computed for the 1961-1990 base period.

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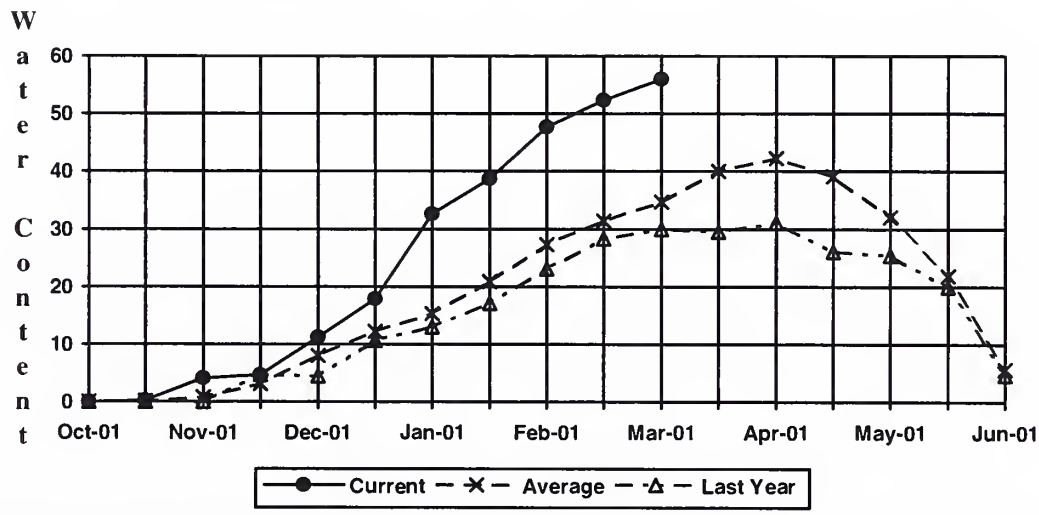
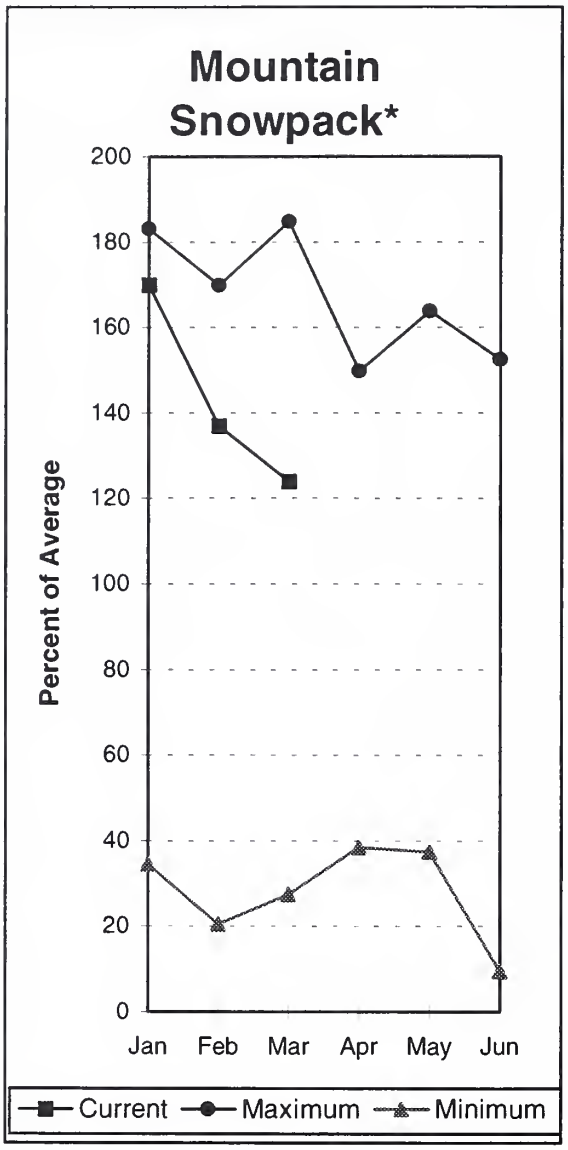
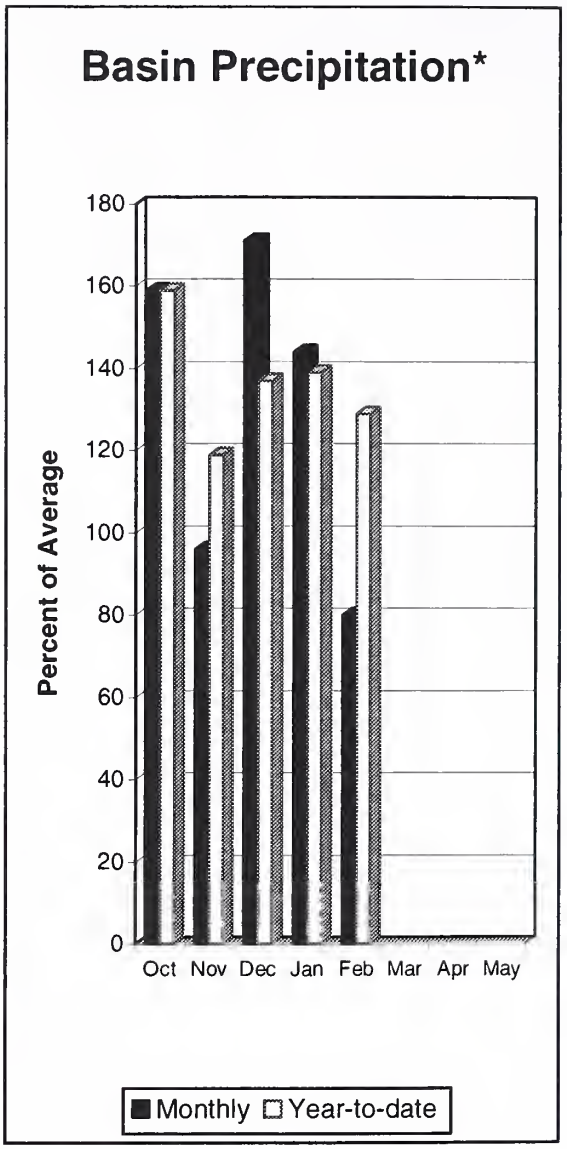
Stevens Pass SNOTEL
Elevation 4070 ft.



North Puget Sound River Basins





*Based on selected stations

Forecast for the Skagit River streamflow is for 123% of average for the spring and summer period. February streamflow in the Skagit River was 115% of average. Other forecast points included the Baker River at 126% and Thunder Creek at 124%. Basin-wide precipitation for February was 80% of average, bringing water-year-to-date to 129% of average. March 1 snow cover in the Skagit River Basin was 142%, the Baker River Basin was 130% and the Nooksack River Basin was 101% of average. Rainy Pass SNOTEL, at 4,780 feet, had 46.6 inches of water content. Average March 1 water content is 32.7 inches. March 1 Skagit River reservoir storage was 277% average and 61% of capacity.

For more information contact your local Natural Resources Conservation Service office.

Streamflow Forecasts - March 1, 1997

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	(% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
THUNDER CREEK near Newhalem	APR-JUL	260	275	285	124	295	310	230
	APR-SEP	379	394	405	124	416	431	328
	APR-JUN	157	174	185	124	196	213	149
SKAGIT RIVER at Newhalem (2)	APR-SEP	2218	2499	2690	123	2881	3162	2185
	APR-JUL	1876	2110	2270	124	2430	2664	1830
	APR-JUN	1450	1629	1750	124	1871	2050	1410
BAKER RIVER near Concrete	APR-JUL	925	999	1050	126	1101	1175	836
	APR-SEP	1193	1280	1340	126	1400	1487	1064
	APR-JUN	674	731	770	126	809	866	611

NORTH PUGET SOUND RIVER BASINS
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
ROSS	1404.1	851.9	1138.6	307.6
DIABLO RESERVOIR		NO REPORT		
GORGE RESERVOIR		NO REPORT		

NORTH PUGET SOUND RIVER BASINS
Watershed Snowpack Analysis - March 1, 1997

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
SKAGIT RIVER	14	130	141
BAKER RIVER	9	218	130
NOOKSACK RIVER	2	363	101

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

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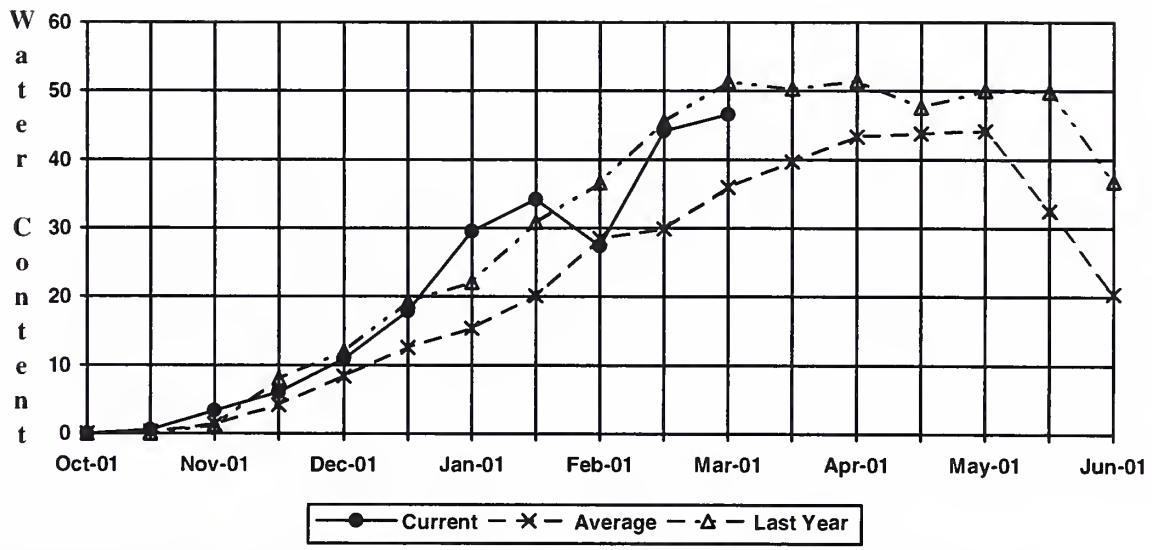
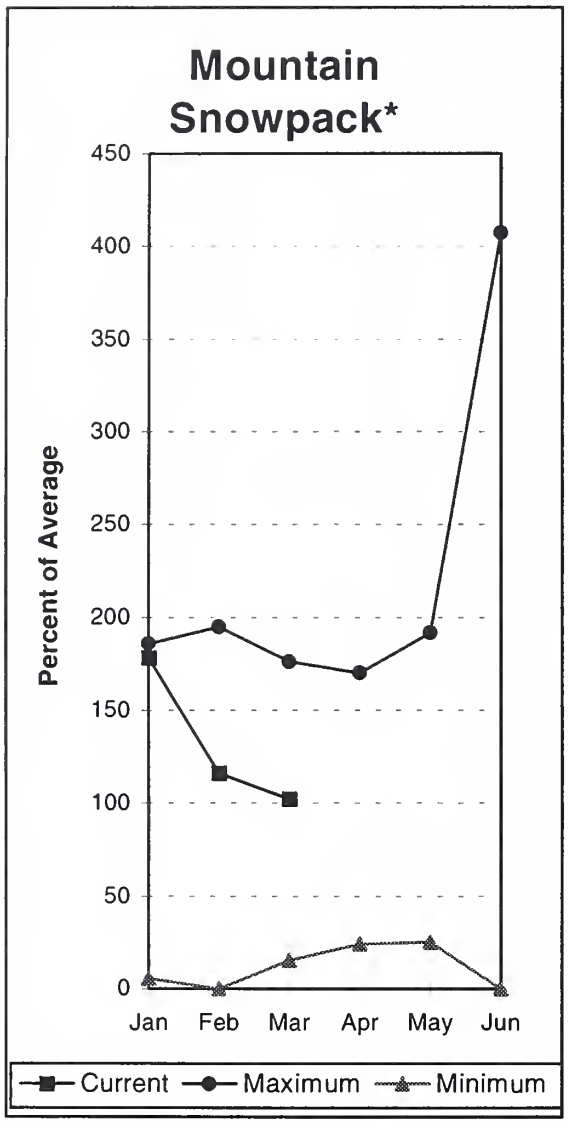
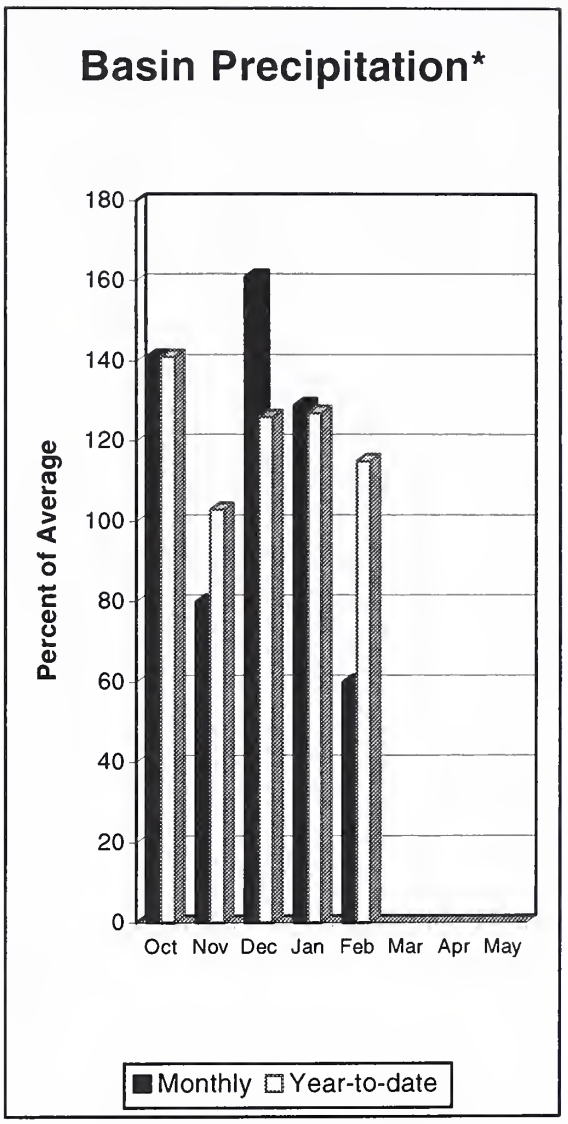
(2) - The value is natural flow - actual flow may be affected by upstream water management.

Rainy Pass SNOTEL
Elevation 4780 ft.



Olympic Peninsula River Basins





*Based on selected stations

March forecasts of runoff for streamflow in the Dungeness River Basin are 120% of average and 122% of average for the Elwha River. The Big Quilcene and Wynoochee rivers can expect near to above average runoff this summer also. February precipitation was only 60% of average. Precipitation has accumulated at 115% of average for the water year. February precipitation at Quillayute was 8.26 inches, the thirty year average for March 1 is 12.01 inches. Average March 1 snow cover in the Olympic Basin was at 102% of average. The Mount Crag SNOTEL near Quilcene had 26.2 inches of snow-water-equivalent on March 1. Average for this site is 26.5 inches.

For more information contact your local Natural Resources Conservation Service office.

Streamflow Forecasts - March 1, 1997

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (Most Probable) (1000AF)	50% (Most Probable) (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
DUNGENESS near Sequim	APR-SEP	167	177	184	120	191	201	153
	APR-JUL	137	145	150	120	155	163	125
	APR-JUN	99	107	113	120	119	127	94
ELWHA near Port Angeles	APR-SEP	551	593	622	122	651	693	510
	APR-JUL	556	588	610	144	632	664	424

OLYMPIC PENINSULA RIVER BASINS
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg

OLYMPIC PENINSULA RIVER BASINS
Watershed Snowpack Analysis - March 1, 1997

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
ELWHA RIVER	1	460	106
MORSE CREEK	1	247	120
DUNGENESS RIVER	1	182	82
QUILCENE RIVER	1	155	99
WYNOOCHEE RIVER	1	367	139

* 90%, 70%, 30%, and 10% chances of exceeding are the probabilities that the actual flow will exceed the volumes in the table.

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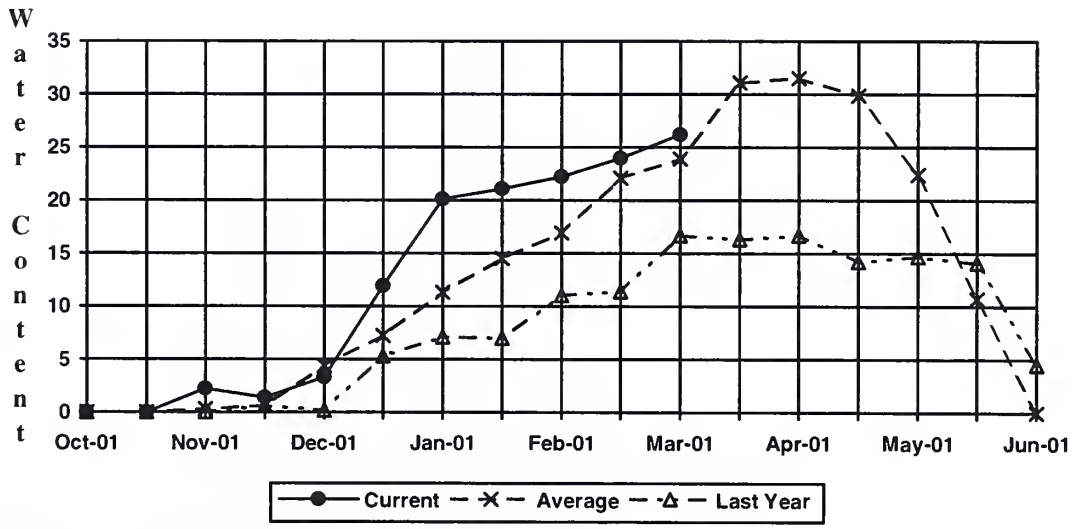
Mount Crag SNOTEL
Elevation 4050 ft.



Issued by

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The Following Organizations Cooperate With the Natural Resources Conservation Service in Snow Survey Work*:

Canada	Ministry of the Environment Investigations Branch, Victoria, British Columbia
State	Washington State Department of Ecology Washington State Department of Natural Resources
Federal	Department of the Army Corps of Engineers U.S. Department of Agriculture Forest Service U.S. Department of Commerce NOAA, National Weather Service U.S. Department of Interior Bonneville Power Administration Bureau of Reclamation Geological Survey National Park Service Bureau of Indian Affairs
Local	City of Tacoma City of Seattle Chelan County P.U.D. Pacific Power and Light Company Puget Sound Power and Light Companv Washington Water Power Company Snohomish County P.U.D. Colville Confederated Tribes Spokane County Yakama Indian Nation
Private	Okanogan Irrigation District Wenatchee Heights Irrigation District Newman Lake Homeowners Association

*Other organizations and Individuals furnish valuable information for the snow survey reports. Their cooperation is gratefully acknowledged.

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Washington Basin Outlook Report

Natural Resources Conservation Service
Spokane, WA